VOLUME 58, NO. 1 JANUARY 1956

THE VOLTA REVIEW

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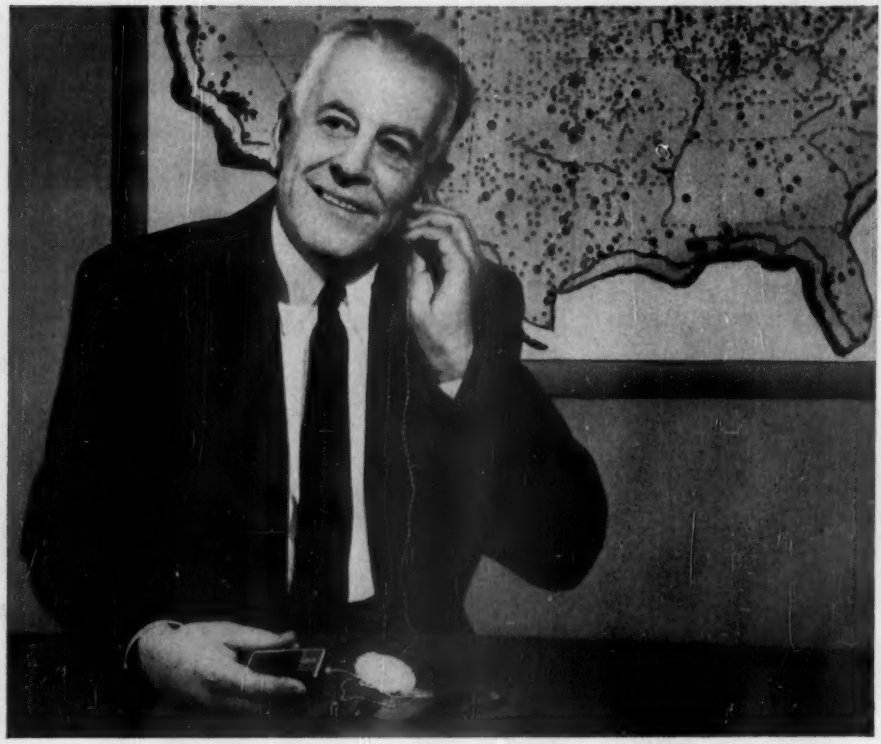
Lexington School Materials Center

(See page 15)

Summer Meeting • Los Angeles • June 18-22, 1956



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JOHN TRACY CLINIC

806 WEST ADAMS BOULEVARD
LOS ANGELES 7, CALIFORNIA

1956 SUMMER PROGRAM

I. Education of the Deaf Preschool Child

Conducted by the Staff of John Tracy Clinic

Monday, June 25, 1956 through Friday, August 3, 1956 from 8:45 to 12:00, and 1:00 to 2:00 Monday through Friday; 2:00 to 4:00 Tuesday Seminars.

This is a practical course in the philosophy and methods of teaching preschool deaf children with appropriate emphasis on the role of the parent. The course offers participation in the entire program of John Tracy Clinic. Classes and group conferences will consider communication methods, the nursery school point of view, child guidance and parent education. It is in no way a complete training course for teaching the deaf, but rather presents one particular aspect.

This Course is coordinated with the six weeks program for parents and children.

Prerequisite: Registration will be limited to trained persons with at least one year's experience in the education of the deaf. However, with special permission of John Tracy Clinic, a limited number of persons in allied fields, or those considering future specialization will be considered in relation to their qualifications.

This Course is offered in association with the University of Southern California, and earns 6 credits. **Tuition—$108.00**

II. Eurythmics Workshop

Conducted by Mrs. Kathleen Wojan of the Lexington School for the Deaf, New York City.

Monday, June 25, 1956 through Friday, July 6, 1956, from 2:00 to 4:00 p.m.

This two-week workshop will offer teachers an opportunity to review the latest rhythm games, dances and materials with Mrs. Wojan. It is offered in response to a demand for a repeat of last summer's successful program. **Tuition—$ 20.00**

III. Audiometric Workshop in the Testing of Preschool Children

Conducted by Miss Shirley Squiers of John Tracy Clinic Staff

Monday, June 25, 1956 through Friday, July 6, 1956 from 10:00 to 12:00 Noon with individual testing hours to be assigned, in the afternoon.

This Workshop in play audiometry is offered in conjunction with the Clinic's new film, "Too Young to Say." It is designed to demonstrate and provide actual working methods in use at the Clinic.

Prerequisites: The workshop is open to speech and hearing therapists, teachers of the deaf, and students training in these fields.

Tuition—$ 20.00

IV. Regular Program for Parents and Children

Conducted by the Staff of John Tracy Clinic

Monday, June 25, 1956 through Friday, August 3, 1956, from 8:45 to 12:00 Noon.

The Clinic will accept an unlimited number of parents of children, ages 5 and under, and a limited number of children, ages 2 1/2 to 5. Classes are offered in the development of communication for the young deaf child; philosophy of nursery school and child development; and parent education, and personality development. Individual instruction toward development of lipreading, speech and use of residual hearing will be given the children in conjunction with the Nursery School program. Preference is given to families living outside the Los Angeles area.

Tuition: There is no charge for this program. Parents must make application on the regular Clinic form, which will be supplied upon request.

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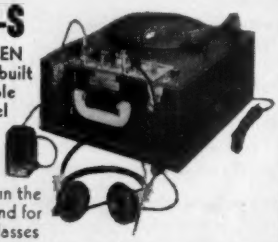

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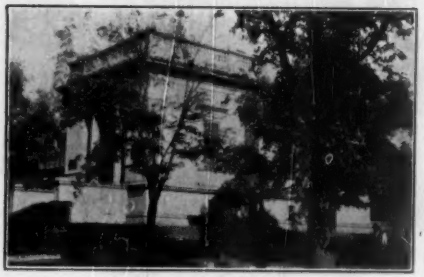

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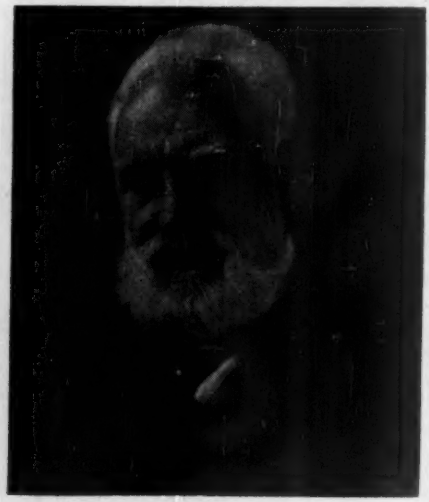
THE ALEXANDER GRAHAM BELL ASSOCIATION FOR THE DEAF welcomes to its membership all who are interested in improving the education of the deaf and the hard of hearing, their ability to communicate with those who hear normally, and their adjustment to life in the hearing world. Its membership fee ($5 a year—$100 for life) includes a subscription to *The Volta Review*. Those wishing to lend additional support to the work of the Association may become sustaining members for a fee of $10 per year.

THE VOLTA BUREAU, headquarters of the Association, is an information center about deafness, founded by Alexander Graham Bell in 1887. Its library on deafness and speech is probably the largest in the world, containing books in twenty or more languages.



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ALICE DUNLAP, EDITOR

PUBLISHED BY THE ALEXANDER GRAHAM BELL ASSOCIATION FOR THE DEAF, INC.

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All Roads Lead to Los Angeles...

And Hollywood Too!

If you are going to Los Angeles for the 1956 Summer Meeting of the Alexander Graham Bell Association for the Deaf, you can enjoy stopovers enroute, either on the way to California or on the return trip.

Those who drive have some advantages, since they can stop as often as they like, and where they like. If you are coming by plane or train, however, it is also possible to see the major sights of the West. Check with your local agent for an exact and up-to-date itinerary, since schedules are subject to change at the last minute.

Pan American World Airways

Hand-woven baskets are only one of the many fascinating items that teachers can buy on Olvera Street, the first street in Los Angeles. Olvera Street is famous for its authentic Mexican shops and sidewalk cafes.

If you plan to drive, it is suggested that you write directly to the Touring Bureau, Automobile Club of Southern California, P.O. Box 2890, Terminal Annex, 2601 South Figueroa St., Los Angeles 54. Mr. Davis, the manager, says that he will see that each Summer Meeting delegate who writes to him will be supplied with a map and information service from his home to Los Angeles. This is a must for those coming by car. Information from the Touring Bureau will also include the highlights enroute to California.

No doubt you have read many enthusiastic accounts about Southern California. You are certain to be pleased, because the area offers a great deal as a result of its unusually favorable geographic setting. There's the crashing surf of the blue Pacific . . . there are the mountains and the desert . . . and you can swim and ski on the same day . . . Yes, all this . . . and Hollywood too!

Maybe you'd better come out and see for yourself. The next few issues of the *Volta Review* will tell you more about the exciting attractions of Southern California.—*V. A. Becker, Summer Meeting Publicity Chairman.*

1956 Summer Meeting

Alexander Graham Bell Association for the Deaf

LOS ANGELES, CALIFORNIA — JUNE 18-22, 1956

HEADQUARTERS: HOTEL STATLER

The Fenestration Operation

GEORGE E. SHAMBAUGH, JR., M.D.

A FREQUENT cause for loss of hearing, that comes on in early and middle adult life, is otosclerosis. This consists in the formation of a small nodule of bone deep in the ear which slowly extends across the oval window, gradually fixing the stapes. Since the stapes normally carries sound from the eardrum through the oval window to the nerve of hearing, as the movements of the stapes become impeded the conduction of sound to the inner ear becomes blocked, with a gradually progressive impairment of hearing. Since the impairment is due to obstruction to sound conduction, this is termed a "conductive hearing loss." Otosclerosis is the most frequent cause for a conductive hearing loss in adult life. It is comparatively rare in childhood.

The exact cause of otosclerosis is not known, and there is no effective medical treatment to arrest or prevent the otosclerotic nodule from slowly closing the oval window. About half of the cases have someone else in the family with the same condition, so there is a certain but not an absolute hereditary tendency. Occasionally (about one time in four) a pregnancy will noticeably increase the hearing loss.

One of the most fascinating chapters in the history of modern surgery concerns the development of operations to restore hearing in progressive deafness from otosclerosis. The first attempts, made nearly 80 years ago and unsuccessful, were to loosen or remove the fixed stapes from the oval window. Revived around the turn of the century this was again abandoned because of unsatisfactory results, only to be revived recently for a third time as the "stapes mobilization operation."

Meanwhile a more promising approach proved to be the construction of a new window or fenestra to take the place of the occluded oval window, thus bypassing the nodule of otosclerotic bone. Such an operation was performed successfully for the first time, with a lasting hearing improvement, about 30 years ago in France. However, the procedure was too complicated and uncertain in its results to achieve general acceptance. The one-stage fenestration operation was introduced to America 18 years ago. There were some permanent early successes with this simplified and improved procedure, but in a considerable proportion of cases the regained hearing was soon lost as new bone formation caused the fenestra to close. Intensive studies in the laboratory and on the ear of the monkey, which so closely resembles the human ear, gradually revealed the factors responsible for the new bone growth that caused the failures. As this knowledge was applied to the fenestration operation, the frequency of closure of the fenestra steadily declined until today in less than 5 per cent of successful operations will the regained hearing be lost from this occurrence.

The fenestration operation does not restore the hearing entirely to normal, but in suitably selected cases of otosclerosis the hearing will be improved to the point where a hearing aid is no longer needed for everyday use. In rare cases (perhaps one in a hundred operations) the hearing becomes worse in the operated ear, and for this reason the poorer hearing ear is usually chosen for surgery. An unsuccessful operation will not affect the hearing in the opposite ear nor interfere with the use of a hearing aid.

The risks of the fenestration operation with today's perfected technic, in the hands of the well trained and experienced surgeon, are very slight indeed. Occasionally the nerve to the muscles of the face is temporarily paralyzed, recovering in a few weeks or months. Dizziness for the first week or two is the chief source of discomfort. As a rule this has disappeared by the third week so that the patient may return to his work. The fenestrated ear

Dr. Shambaugh, a noted Chicago ear specialist, is a well-known authority on the fenestration operation and the subject of otosclerosis. For more than twenty years he has been a frequent contributor to medical and professional journals, and his articles and reports have dealt with practically all aspects of otology.

requires two months or more to heal, and thereafter it must be cleaned once a year or oftener.

The fenestration operation cannot be used for all cases of otosclerosis. A series of special tests to measure the condition of the hearing nerve is needed to determine the eligibility of the individual for this procedure. From these tests a rather accurate prediction of the hearing level to be expected from surgery may then be made and compared with the hearing obtained from a hearing aid. Where the hearing nerve is in good condition the improvement from a successful fenestration should equal or slightly surpass the hearing from a good hearing aid, especially in clarity but also in distance in some cases. When the nerve begins to show evidence of deterioration surgery offers less in comparison with a good hearing aid, until the point is reached where the latter is advisable rather than an operation.

From a relatively uncertain procedure the fenestration operation has evolved into one of the safest and most consistently successful of surgical operations. In one series of 4,000 fenestration operations there has been no fatality or serious complication, a remarkable record for any surgical procedure. The operation, with today's perfected technic, will be successful in around 95 per cent of cases where the hearing nerve is in good condition. Careful follow-up studies of several large series of cases show that 70 to 80 per cent of the cases will maintain their improvement for 5 to 10 years or longer. An increasing number of cases are being seen with restored hearing that has remained at a constant level for 15 years or longer after operation. We are learning that the otosclerotic nodule in most cases does not continue to increase in size, but rather becomes inactive as the individual grows older. Thus the victim of otosclerosis need not fear that his hearing will necessarily gradually worsen after a successful operation.

The recently revived stapes mobilization operation is still in the experimental stage, with little or nothing being known of the permanence of any benefit, and not much being known as yet of its indications. It has been initially successful in about 30 per cent of operations, compared with 95 per cent of fenestrations that are successful. It may be tried in certain cases of otosclerosis not suitable for fenestration. It may also be tried as a preliminary experimental procedure, but with the expectation that fenestration will probably be required at a later date. It certainly can never replace fenestration, since the majority of otosclerotic fixations of the stapes are so solid that there is no possibility of loosening them by any form of manipulation.

The patient with progressive deafness from otosclerosis may count himself fortunate indeed to be living today. Not only does he have a type of loss that can be restored by an operation, but, should the operation fail or should he choose not to be operated, he may expect excellent results with a hearing aid.

DEAF-BLIND PROGRAM IN ALABAMA

A class for deaf-blind students was opened this fall, on an experimental basis, at the Alabama Institute for Deaf and Blind, Talladega. If the program is successful, the American Foundation for the Blind will petition the Board of Trustees of the Alabama state schools to set it up as a permanent regional training center for deaf-blind children in the southeastern states. Under the regional plan each state pays a fee of $3,000 per child for a nine-month term, with all children accepted only on a trial basis. Four children already enrolled are from Indiana, West Virginia and Florida. The children are housed in separate quarters, but participation in school and dormitory activities is encouraged. The pupils' teachers are Mrs. King Snell and Miss Mamie Sparks. A trained supervisor cares for the children during after-school hours. Because of the individual attention needed by the deaf-blind, the maximum teacher load is three students.

Education of the Deaf in England
An American Teacher's Comments on

MARJORIE E. MAGNER

IN September 1954 I walked up the gangway of the S.S. "United States" and began the most thrilling year I've ever known. During the academic year I studied in the Department of Education of the Deaf at the University of Manchester, England. I visited a number of schools for the deaf, clinics, parent groups, and various organizations interested in deaf children. Whenever possible, I worked along with skilled English teachers and clinicians in order to practice their teaching or testing techniques and thus better understand their approach to the education of deaf children.

It was a busy year, but I won't pretend to give an impression that it was filled only with work! I found time to visit ten other European countries, to see sights that I've longed to see in Great Britain and on the Continent, to visit with overseas friends that I had met here at home, and to make many new friends. Each day of that year was filled with exciting, enriching and pleasant experiences. In late August of 1955, as I stood on deck of H.M. "Queen Mary" and watched England slowly disappear from my vision, I felt the full impact of both the indescribable joy that comes to a traveler as he is returning home and the deep sadness that one feels when he must bid farewell to special friends and terminate a thoroughly happy and stimulating year.

That "year of years" is more than a memory for I've brought back ideas and attitudes that I believe can supplement and improve my own teaching and, from the general interest on the part of all the members of our Clarke School staff, will possibly serve to augment work in other classrooms as well. That year will never really end for me for I know that I shall continue to enjoy it in retrospect forever.

I have been especially interested in the educational approach for deaf children in England ever since the internationally famous educators of the deaf, Professor and Mrs. A. W. G. Ewing, Manchester, England, visited our country and presented a series of lectures and demonstrations at Clarke School almost ten years ago. Since that time I have dreamed of a year when I could go there to study. I wanted to learn as much as possible about the following: (1) General approach to the education of profoundly deaf children. (2) Tests of hearing and use of hearing aids. (3) Parent guidance and home training program. (4) Teacher education program and requirements for certification.

A generous Fulbright grant, a leave of absence for one year from the Clarke School, the guidance and consideration shown me by Professor Ewing and his staff, the attention and help given me by Mrs. Ewing, and the cooperation of members of the staffs in the schools and clinics that I visited throughout England, made my dream become a reality.

It is not possible, in a few words, to sum up all the activities and thoughts that I enjoyed last year, but I shall try to fulfill the request received from the Volta Bureau and note many of my impressions of the work in the education of the deaf being carried on in England. In doing this I shall discuss briefly the four points outlined above.

General Approach to the Education Of Profoundly Deaf Children

During the year I observed work ranging from excellent to mediocre being done in England, just as one would see should he visit a number of our own schools and clinics. I didn't meet anyone who knew or claimed to know all the answers to the many problems that confront those of us who work with deaf children. I did not observe any approach, technique or method that was completely revolutionary. Discussions with Professor and Mrs. Ewing, members of the staffs at the university and

Miss Magner is a member of the faculty of the Clarke School for the Deaf, and a life member of the Alexander Graham Bell Association for the Deaf.

at schools and clinics for deaf children, and with students in the teacher education department, were frequent and most stimulating.

Provision was made through the Education Act, which went into force in 1945, for the education of deaf children in England from the age of two years. Except in rare circumstances, however, children under three are not to be found in either the day or the residential schools. For the most part they are being cared for through parent guidance and home training programs. I was especially impressed with the fine work being done for deaf children under five years of age through those programs.

Deaf children may enter the nursery-infant schools at two plus (usually they are three to four plus) and stay until they are approximately eight years of age. They are then transferred to junior-senior schools which are usually in buildings completely away from the nursery-infant schools. I saw good work in both sections of those schools, but only in cases where special educational guidance throughout each child's school life is given do I feel that the boys and girls can make that adjustment without retardation at the beginning of the junior-senior school.

The children are required to stay in school until they reach the age of sixteen. When they are twelve or thirteen it is decided through examination and conferences whether they should go on in the senior school, enter the Technical School for Boys, or proceed to the Mary Hare Grammar School for the Deaf which may lead to the examination for entrance to university. The program in each of these three types of schools follows that of the education in secondary schools for hearing children as nearly as is possible, taking into consideration, of course, the special needs of the children.

Special attention is being given to the partially deaf, that is, children who have naturally acquired speech. There are four residential schools and several classes attached to both schools for the deaf and to ordinary schools for these children. The borderline cases—those children who seem to have too much hearing to be in a school for the deaf and who are unable to make satisfactory progress in schools for hearing children—receive educational treatment in the special schools or classes. As soon as they are socially and academically ready they are fitted into ordinary schools.

The educational program for all deaf children is oral. I did see conventional signs and fingerspelling on the playgrounds of several schools, but I also observed the children at the Grammar School and at nursery-infant and junior schools where conventional signs were not used at any time.

Tests of Hearing and Hearing Aids

Mrs. Ewing, who has retired from the university, has promoted a plan through which screening and diagnostic tests of hearing may be given to all preschool children in England at the earliest possible age. She has trained, and continues to train, a large number of health visitors to give these tests under the national health scheme. When a child does not pass the screening test he is referred to one of the diagnostic clinics established throughout the country by Mrs. Ewing. There the carefully trained staff gives the child further tests of hearing that are suited to his age and abilities. The tests for very young children are free field, personalized, distraction tests and are carefully administered. Not only are the intensities and frequencies of sound calibrated as carefully as possible, but the type of the response that the children give is observed and recorded. The stimuli used in the tests are those that the Ewings have found, through years of research and work, to be meaningful to children with normal capacities to hear and to provoke definite types of response at different age levels.

When a child is able to cooperate with the tester he is encouraged to perform a simple activity whenever he hears a given sound. Again this is a free field, personalized test. When the test is properly administered the tester and his assistant can determine with considerable accuracy the extent of hearing the child possesses at each frequency from 256 to 4096 or at even greater cycles per second. As soon as possible after children learn to participate in free field activity tests, they are introduced to similar tests with the audiometer. Pure tone air conduction and bone conduction tests are then given.

The government provides and services

Medresco hearing aids for all children who can benefit from them. Speech training units or table model hearing aids manufactured in England, America and Holland are used in clinics and in schools. There are a number of good group hearing aids being efficiently used in the schools for the deaf, but because of financial reasons there is a serious lack of these aids in most of the English schools. The teachers that I met were keenly interested in helping children use their limited capacities to hear, along with lipreading as a means of perceiving the speech of others, and improving their own speech, even though group aids were often lacking. In several instances I felt the individual aids were being put to use more intelligently and effectively by parents, teachers and children than is sometimes done by many of us in this country. Often I ached to see better hearing equipment in the classrooms there, but the teachers are to be complimented on the fine job they are doing with their limited equipment.

Parent Guidance and Home Training

Professor and Mrs. Ewing and the staff at the University of Manchester have done an outstanding job pioneering in this field throughout England. Parent guidance and home training began at the university more than ten years ago, under Mrs. Ewing's direction, and has now spread to centers in several sections of England. The teacher or clinician does not work directly with the deaf child. She discusses the problems with the parents and then sits on the sidelines and guides them as they work and play with their child.

The parents are given as much help as possible in ordinary child care. Along with this they are helped to understand their own child's abilities. Naturally some children are able to progress faster than others, and some parents are able to help their children more than others. It was a pleasure to see the way parents learned to use the glances of their young children and gradually help them acquire the desire to watch for speech in an easy, natural way. They are helped to understand the extent and limitations of the Medresco hearing aid. Then they are given further guidance over a period of time in using the aid with their child. They are helped to understand the importance of using hearing and lipreading together, whenever possible, and in turn to encourage pleasant, spontaneous vocalizations from the children. They are not encouraged to work on the child's articulation, for that requires special educational treatment by qualified teachers of the deaf, but parents learn that the desire to talk should come early and that the best stimulus for spontaneous, natural vocalization is in the child's home with those who love and understand him. The Ewings describe this program in their books *Opportunity and the Deaf Child* and *Speech and the Deaf Child.*

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Teachers in England may become qualified to teach deaf children either by (a) completing the one year course leading to a practical and a written examination at the Department of Education for the Deaf at Manchester University; or (b) the satisfactory completion of an examination after a two year period of work that is somewhat comparable to the in-service training found in some of the schools in this country. The teachers are not required to have a degree, but they must be qualified to teach hearing children.

The teacher-training program at the university is comprehensive and consists of lectures in psychology, speech, audiology, methods and curriculum, history, anatomy, health and physical education. Students are given an opportunity to observe numerous classes in schools for the deaf and have practice teaching assignments in at least two schools. There were 63 students taking the course at the University last year, and I understand that the class is even larger this year. Are we recruiting and training as many teachers in proportion to our numbers in this country?

Conclusion

With the exception of a few schools, I was disturbed over the lack of physical comforts and the limited equipment and supplies compared with that in our own schools. New schools are being built and requisitions for equipment and supplies are gradually being met. So, in time, I believe the teachers and children will be able to enjoy many of the things that we take for granted and that they have looked upon as being luxuries.

at schools and clinics for deaf children, and with students in the teacher education department, were frequent and most stimulating.

Provision was made through the Education Act, which went into force in 1945, for the education of deaf children in England from the age of two years. Except in rare circumstances, however, children under three are not to be found in either the day or the residential schools. For the most part they are being cared for through parent guidance and home training programs. I was especially impressed with the fine work being done for deaf children under five years of age through those programs.

Deaf children may enter the nursery-infant schools at two plus (usually they are three to four plus) and stay until they are approximately eight years of age. They are then transferred to junior-senior schools which are usually in buildings completely away from the nursery-infant schools. I saw good work in both sections of those schools, but only in cases where special educational guidance throughout each child's school life is given do I feel that the boys and girls can make that adjustment without retardation at the beginning of the junior-senior school.

The children are required to stay in school until they reach the age of sixteen. When they are twelve or thirteen it is decided through examination and conferences whether they should go on in the senior school, enter the Technical School for Boys, or proceed to the Mary Hare Grammar School for the Deaf which may lead to the examination for entrance to university. The program in each of these three types of schools follows that of the education in secondary schools for hearing children as nearly as is possible, taking into consideration, of course, the special needs of the children.

Special attention is being given to the partially deaf, that is, children who have naturally acquired speech. There are four residential schools and several classes attached to both schools for the deaf and to ordinary schools for these children. The borderline cases—those children who seem to have too much hearing to be in a school for the deaf and who are unable to make satisfactory progress in schools for hearing children—receive educational treatment in the special schools or classes. As soon as they are socially and academically ready they are fitted into ordinary schools.

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I was confused when I first began to visit and attempt to teach in their schools. I sorely felt the damp and chill of English weather. I missed the group hearing aids used at Clarke School. More than anything else, however, I missed the systematic use of the Fitzgerald Key that is developed gradually at our school and used in all our work throughout each day. At first the approach, as I observed it in the English schools, seemed disorganized. After a few weeks I began to appreciate the work and to realize that there was system to their way of teaching.

I was delighted with the alertness and enthusiasm of the children. They were, on the whole, excellent general lipreaders. I believe, in fact, they read lips better than most of the pupils in our schools. The use of good straight language by the children at all levels, with the exception of those that I observed in the Grammar School, was not as apparent. The children, especially those in the primary grades, spoke more spontaneously and fluently than many of our children, but to me their speech seemed less intelligible. It is evident that the approaches used in England and in America are both proving successful, but I believe a combination of the two can be of even greater value to deaf children.

Can we bring together the best in the many approaches used in our schools for the deaf throughout the world today? Are we able to look at our work and the achievements of others honestly and objectively and accept that which seems best for our children? Can we weigh, measure and compare results without trying to win, to be first, to enjoy the limelight? We must, if we are ever to do the best possible job. It is for that reason that we at the Clarke School were anxious to know and understand the approach being used in England. I sincerely hope that we shall be able to take the best from the two approaches and give our children the advantages of both.

I Speak for Parents

ETHEL B. WARFIELD

As educational consultant for the New Jersey School for the Deaf, West Trenton, I have been for many years responsible for admissions and have had close contact with hundreds of families who are faced with the problem of education for the deaf child.

At the first interview the mother invariably asks the question: "Will my child ever talk?" Our deaf parents have this same desire and often the children of these parents come to us with some facility in lipreading. These parents are constantly checking the progress in speech and speechreading, and show intense pleasure when their children are talking.

At the first visit to the school we hasten to a classroom of young children to let the parents see the children, eager and happy, using speech and lipreading. The look on the faces of the mothers and father is, I feel, the answer to the question of method.

That there are other and very important reasons for speech and lipreading, which need constantly to be reiterated to our young teachers, goes without saying. But our first consideration should be the strong desire to have the child speak. Have not the parents of deaf children a right to be heard?

ICEC TO MEET IN MINNEAPOLIS

The International Council for Exceptional Children will hold its next annual meeting in Minneapolis on April 10-14, 1956. Mrs. Betty Abbott, Day Class for the Deaf, Springfield, Ill., will direct a section on "Teamwork Practice for the Acoustically Handicapped." Miss Alice Streng, director of special education, Milwaukee State Teachers College, will direct the section for the classroom teacher of the deaf.

Materials Center

Visual Education Materials and Books

PATRICIA BLAIR CORY

THE Lexington School for the Deaf is gradually working toward a combined materials center where various teaching and recreational materials will be brought together and organized for use in one place.

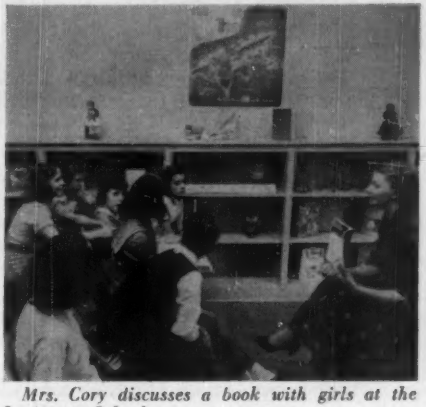
Research has shown that learning takes place more quickly, and that retention is greater and more lasting, when a variety of teaching materials are used to *reinforce* one another. A multiple use of materials will be made more readily if they are all housed together in an easily accessible place. At the Lexington School we are in agreement with this basic principle. There is no feeling among us that books, films, records and other media are competing with one another, or that one is more valuable than another. Rather we feel that a unity of materials exists and we wish the children and young people who use this school library to feel that they can find useful and interesting information on many subjects in moving pictures, still pictures, filmstrips, novels, biographies and the daily newspapers, as well as in textbooks and encyclopedias.

Since there was basic agreement among all concerned, it was a relatively simple matter to consolidate the previewing and ordering of film materials with the examination and selection of book materials. Bringing the two functions together physically in an old and crowded building was not quite such a simple matter, but since a central materials center for the convenience of all was the goal, certain class shifts were made and a rather narrow, dark classroom next door to the library was vacated.

Remodeling

At this point we set about planning for the physical changes which would be necessary to transform the vacant room into an inviting as well as functional room in which all types of audio and visual materials might be easily used, and which would also obviously be a part and parcel of the library center and not a room apart into which the children went to be entertained by "movies."

A door was cut through the wall between the library and the new visual education room. This door serves two purposes: (1) It enables one staff member to control both rooms. (2) It has a psychological effect on the children in helping to unify in their minds the activities which are carried on in the two rooms. The children come to these adjoining rooms not only to read, but to see educational films, filmstrips and exhibits, as well as to participate in story hour programs and to do reference work. The door permits easy passage back and forth and youngsters can return their books, see a film, "hear" a story or give a book report without leaving the informal atmosphere of the library.



Mrs. Cory discusses a book with girls at the Lexington School.

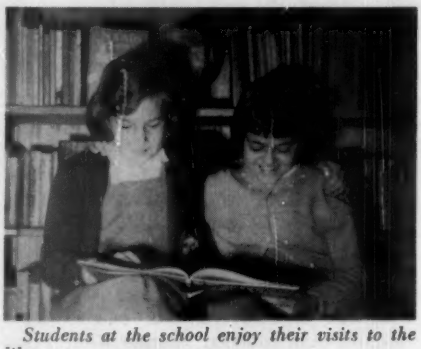
In cramped quarters a little space was saved by equipping the doorway with a modern folding plastic door which screens out the light and muffles sound sufficiently so that the sound motion picture noise

Mrs. Cory is librarian of the Lexington School for the Deaf, New York City. A note about her appeared in the December 1955 *Volta Review*, page 449.

will not be disturbing in the other room. The far wall of the visual education room, which is visible from the library, was equipped with low attractive open bookshelves to be used for display of fresh, colorful books, special editions, and for the display of objects such as dolls, figures, models and children's art work. Also shelved in this room are the series of attractive film-readers designed to go with some two dozen popular Encyclopaedia Britannica films. The ceiling and walls above the bookshelves have been soundproofed to insure good reception of the motion picture sound tracks. A permanent screen was placed on one wall and a black shade was purchased for the only window in the room. A simple wooden frame was built around the window to prevent light from bleeding into the room around the edges of the curtain. A rolling projector stand and the necessary electric outlets were placed at the opposite end of the room.

To house the various pieces of equipment necessary for a visual education program, a series of cabinets with sliding doors (again to conserve precious space) were constructed along the other long wall of the room. In these are housed a second rolling projector stand and a second 16mm sound projector which can be wheeled out to classrooms, assembly hall or playrooms; a silent 16mm projector, two filmstrip projectors, one combination filmstrip and 2x2 slide projector, a tachistoscope and an overhead opaque projector. The sliding doors also conceal the storage cabinet for a filmstrip library of 300 titles, and for the index and circulation files necessary for the lending of filmstrips. The cabinets also provide storage space for extra reels, extension cords and supplies. All of the equipment may be checked out by teachers for use in their own rooms.

The visual education room, when fully completed, will be equipped with the usual auditory training equipment which is standard for all classrooms at the Lexington School. Children with usable hearing will not only enjoy amplified recordings and speech, but their headsets may be plugged into the sound motion picture equipment so that they may hear music and ambient sounds. Readers can readily understand that the hearing of background sounds such as a train whistle, horse's hooves or a dog's bark can add to the enjoyment of a motion picture and in some instances may contribute to the understanding of it. A small spotlight placed high, with its light directed downward toward the front of the room at a point near the screen, permits the lips and face of the teacher or librarian to be seen by the children. Even though children are prepared in advance for film showings, there are



Students at the school enjoy their visits to the library.

many occasions during a film when a short explanation may be necessary. The use of the spotlight permits the children to lipread personal commentary.

The entire room was painted a soft aqua shade which the children evidently find attractive since they have been most generous in their spontaneous compliments about the "pretty room."

The Program

It is pleasant to have our nice new room and to have a generous supply of new books and films which our Board makes it possible for us to have each year. But our library *program* is of major and continuing concern. The library at the Lexington School is an integral part of the academic department under the general guidance of Miss Mildred Groht. The library materials center is open for use by all—students of both the academic and vocational departments, faculty, and the teachers in training. In addition to this individual use, there is a planned program of book and film use for selected academic classes which are scheduled for regular weekly visits. One week book work is stressed and the

classes from the first grade through the intermediate grades are told suitable stories. The young people in the junior and senior high school classes give oral book reports on the books which they have read.

On alternate weeks visual materials are emphasized and motion pictures on many subjects are shown. In going over a large number of motion pictures for use with the deaf, some subject fields present more fruitful areas than others. We find film materials in the fields of nature study, social studies and science particularly useful. Films like *Gray Squirrel, Shep—the Farm Dog,* and *Adventures of Bunny Rabbit* are useful with preschool and primary groups, while *Protective Color of Animals, Astronomy, Volcanoes in Action,* conservation films and the like are excellent with older groups. In the social studies there is a wealth of material. Films on community helpers—*The Policeman, The Fireman* and *The Bus Driver,* are excellent and can be used at both the primary and intermediate levels. Films such as *The Food Store, The Airport* and *Tugboats* give good vicarious experiences and provide excellent points of departure for discussion and for follow-up reading. Material on transportation, found in such films as *An Ocean Liner, The Freight Train* and *Passenger Train,* is very useful to our social studies teacher and very popular with the children. This teacher, in commenting on *Freight Train,* said: "No amount of reading would have given the children this information."

It is true that the camera, with its close-ups and its mobility, can produce action films which simulate real life situations. Films can teach in a way which books can not, but it is also true that much more can be taught through a film when the children have been properly prepared beforehand and if there is guided discussion and reading after the film is shown. In connection with preparation of the students, it is worth noting that a number of the films mentioned above have companion readers which have been specially prepared for use with the films. The Row Peterson Book Company has a series of eight film-story books in the field of geography which go with "The Children of Other Lands" film series from the Encyclopaedia Britannica Film Co. The D. C. Heath Company has 16 easier film story books which also accompany Encyclopaedia Britannica nature and social studies films for the primary grades. Both series of books have large clear illustrations taken from the motion pictures. We have found it most effective to distribute the booklets to teachers in *advance* of the film showing. Thus the children come to the film with some understanding of what they are about to see.

Many times a film showing is interrupted for discussion or explanation. On occasion the same film is shown a second time after the teacher or librarian has had time to discuss it with the children. This is particularly important with the junior and senior high groups which study fairly complex films such as *The Solar System* and *The Nervous System.*

Our Vocational Department also uses films especially in the fields of homemaking and cooking.

Some Limitations

We feel that our chief limitation is our own imagination, and that with more ingenuity and experience with visual materials there are no limits to what can be taught through purely visual means. This is true of all children, but it is particularly true of the deaf since the chief avenue to the mind lies through their eyes. We would, of course, like to have more films with captions. We now own about 20 silent films, made some years ago and secured from Encyclopaedia Britannica Films. These are captioned and some of them, such as *Erosion* and *Circulatory System,* are acceptable and have proven useful. Others are dated and less useful. Also, as noted before, we have found some types of sound films definitely less desirable than others for use with the deaf. A great many biographical films, for instance, which recreate the lives of such persons as Louisa May Alcott, Longfellow or Columbus, are too "talky." The burden of the message is placed heavily on the sound track rather than on the visual image and we have found the films ineffective. Attitudinal films, such as *Don't Get Angry* and *How to be Popular,* also depend heavily upon the sound track and require frequent participation and much comment from the person using the film. The best films for us are the ones whose chief message is

presented visually, through the pictures on the screen. Simple captions would also help tremendously.

Some Recommendations

Do a lot of previewing and build up a backlog of knowledge of useful films. Just as there is no substitute for handling and actually reading a book, there is no satisfactory substitute for seeing the film yourself. I would never use a film in our library program that I had not seen. Every year a good many new titles are previewed so that we can keep our program fresh and add to our little collection of useful films.

As a rule we use films prepared specifically for educational purposes. These are rented by the week from education film companies, or borrowed from the public library's film collection. The films have been made under the guidance of educators and are designed for use in learning situations. That is their sole purpose and they do not contain advertising or other extraneous material. On occasion we do use free advertising films available from companies such as Esso, Armour, Du Pont and Bell Laboratories. Free advertising films are often too long for class use and are sometimes too diffuse to be really meaningful, but we use those that meet our requirements.

This advice can not be repeated too often: Prepare the children in advance by showing them books or still pictures on the subjects, and by talking about the film and describing some of the important things they will see. Stop the film during the showing and allow time for explanation if it seems desirable. Talk about the film afterward, and show it a second time if you feel more information will be gained by doing so.

Keep records of the films you have seen, together with comments on the usefulness and approximate age level of the material. We like to keep records on the poor films as well as the good ones, giving the reason for the lack of success with the deaf so that we may avoid scheduling such films in the future. Over a period of time one may screen and use hundreds of films and it is difficult to recall, in 1955, which were considered poor and which good, and why, in 1951. By keeping a brief record with comments of teacher, librarian, health director, or psychologist, we are building up a sizable information file on motion pictures. This is extremely helpful in planning our programs each year.

Filmstrips and Other Materials

While we borrow or rent most of our motion pictures, we purchase filmstrips and now have a small but well used collection. The unit cost of filmstrips is not much more than the cost of books these days, and the filmstrips can be used over and over by many classes. It is now feasible for even small schools to purchase some filmstrips. The filmstrips, while not as glamorous as the moving picture and not as near to real life experience, have other advantages. The teacher can move them along at his own speed, and can give as much or as little comment on each picture as he may desire. The *group* experience is the same as that provided by a motion picture—*all* the children can see the one large projected picture. Filmstrips and the filmstrip projectors are so easily portable that they can be set up in individual classrooms. Filmstrips, like books, are easily available for review.

The tachistoscope and the overhead projector are similarly used by individual teachers who may take the machines to their own classrooms where their own materials are conveniently around them.

The Children's Reaction

After the considerable expenditure of staff time and a certain amount of money necessary to present the visual program, it is most interesting to observe the effects upon the children. We have not done any scientific measuring at Lexington School to determine whether or not the children learn more when visual devices are used. We know that such studies have been done with hearing children and with adults, and that visual tools, when properly used, are very effective in speeding the learning process and in bringing about longer retention.

Present knowledge of the effectiveness of the program with our children is based upon staff observation. That observation convinces us that we have a pretty good thing. The children—of all ages from the nursery through high school—thoroughly enjoy the films. They pay rapt attention, ask questions, and discuss the films eagerly.

The younger ones enjoy acting out what they have seen, and the older ones enjoy taking out books connected with the films. The teachers who use films consistently, and prepare the children thoroughly, are well pleased with the results. The children's enjoyment would seem to contribute immeasurably to learning, since boredom is the arch enemy of learning. While the films are obviously fun for the youngsters, and in fact are considered to be a treat by them, the casual use of just any film is discouraged. The children think they are having "just fun," while the educator selects each motion picture or series of motion pictures with specific purposes in mind.

Our goal is not a volume use of educational motion pictures, but a selective, planned, sound use which will expand as we identify more usable films and as we gain experience using this new media with the deaf.

It is recommended that those who are not geographically located near film distribution centers consult the *Educational Film Guide* and its companion volume, the *Filmstrip Guide*, both published by the H. W. Wilson Company.[1] In addition to brief descriptions of films and filmstrips, the guides direct readers to purchase and rental sources and both contain directories of producers and distributors. Often it is also helpful, when securing films, to build up a file of film catalogs from your state department of education, your public library's film department, and from nearby commercial dealers.

[1]H. W. Wilson Company, 950 University Ave., New York 52, N. Y.

A School in Guatemala

ARTHUR B. SIMON

AT THE end of a dusty and unpaved street, on the outskirts of Guatemala City, stands a pink and green villa. No one can miss it, for it stands almost alone on a sparsely inhabited and nearly barren tract.

Once you step inside the ornate iron gates you find yourself standing in a little courtyard with a tiny fountain. Great profusions of brilliant orange hibiscus and purple bougainvillaea grow along the high fences, shutting out the outside world and casting a cool shade over the courtyard.

The villa stands serenely like a little old lady, but behind the complacent facade there goes on an experiment that calls for tremendous courage and faith. Here a school for the deaf and blind is functioning. *La Escuela* "Santa Lucia"—as it is called—is a private institution, supported by a government subsidy but largely dependent on charitable contributions.

Started only a few years ago, the school has but two classes for the deaf—beginning and advanced. The teachers are not trained; they have no equipment; they have no reliable information. In fact, they have been so completely isolated that they never heard of the Volta Bureau.

Yet where do they get their inspiration, their belief, their determination that the deaf should not be denied the opportunity to learn speech? It was a miracle to me, one who has always taken for granted that the deaf can be taught to speak, that these very young teachers were actually succeeding in producing speech in their little charges.

The ingenuity of these teachers is amazing. With no information or help whatsoever, they know how to use candles, mirrors, and hand-drawn charts of sounds. They can devise and make do when they have no tools to work with.

Mr. Simon, who was born deaf, has contributed many articles to the *Volta Review*. He also established the Volta Bureau's Clara Block Memorial Library in memory of his grandmother. Through this library books are made available on loan to parents of deaf and hard of hearing children. Mr. Simon makes his home in San Francisco.

How do they teach their pupils to think in abstract terms? One teacher showed me different sizes of paper strips. They signified different distances. A short strip meant "close" or "near;" a long strip meant "further on;" and an even longer one "far away."

The other teacher has her pupils paint pictures of what they see. In this way they can express themselves. The teacher labels each object in the paintings so that the children can learn for themselves that everything, even action, can be expressed in words.

The Children Are Artists

From these paintings I could see that the children, although unable to use speech and lipreading as effective means of communication, could understand and comprehend what went on around them. But what interested me particularly was that these children in their painting strove for proper perspective, that they chose their colors with good taste, that unaided they painted meaningful and well-organized pictures of what art critics would term good quality.

These little artists must have inherited their flair for design and color from their Mayan ancestors, as well as their parents have. Everywhere beautiful and colorful textiles and pottery are in use every day, very much like what was used over two thousand years ago when the Mayan Civilization was in full glory.

Their talent is the more amazing when one hears about their background, let alone the fact that they can learn so much about language in a short time. A little boy, for example, with limpid, liquid black eyes and a shy, gentle smile, came to the school directly from a cave. He wore only a ragged T-shirt and no pants of any kind at all. He had never slept in a bed; he had never seen a bathtub; he had never used eating utensils. In short, he had to be taught the fundamentals of "civilization" first.

Other children came from almost as primitive homes. It must be remembered that 90 per cent of Guatemalans have below-subsistence living standards, and that another 5 per cent are still living in what we would call a Victorian era because of the lack of conveniences they still have.

The school must seem like a palace to the children—it has well-fitted bathrooms and kitchens. They rarely go home. Their parents are too busy working for a living to pay much attention to them; their sisters and brothers probably already have been set to work. Furthermore, outside of the cities, there still exists a superstitious fear of handicapped people — they used to be sacrificed in order to appease the gods.

The visit I paid to the school was brief. The children were getting ready to go on a field trip, one of the many they take. The social welfare worker who is responsible for them understands their isolation and their need to learn what goes on outside the school.

The children, on seeing me leaving, crowded around and gave me spontaneous hugs. I, of course, had to kiss each one of them back.

I left happy, knowing that Guatemala, backward in many respects, had a school that is advanced in several respects, even more than in some North American schools despite their material advantages. I wonder what *La Escuela* "Santa Lucia" could accomplish further if it had proper equipment and playgrounds, and sufficient clothing for the children?

NEW HAVEN HEARING LEAGUE

An introductory series of classes in lipreading and auditory training is being sponsored by the New Haven (Conn.) Hearing League. The course is conducted by William F. Formaad, director of Speech and Hearing Education in the Hamden (Conn.) Public Schools. Considerable interest is being shown in the series, which opened on November 7. Other projects of the New Haven Hearing League include a survey of hearing programs in public and parochial schools, community education programs and hearing tests for adults.

Santa Claus Visits the Volta Bureau

"KNOWING the great difficulty all charities have in meeting their budget requirements, I sincerely hope this contribution will be of some help in planning the budget."

This unsolicited expression of interest came from a man in New York City who had not heard of the Volta Bureau until recently. As he explained it: "One of your subscribers to the *Volta Review*, who is an ardent admirer of the work done by the Volta Bureau, showed me a copy of your magazine. As a result of this, I asked her about the activities of the Bureau and was informed of the splendid work being done to aid the deaf and the hard of hearing."

This newly-won friend contributed ten shares of corporate stock to the Volta Bureau, and also sent a generous gift from his mother.

The Volta Bureau has many friends. Over 200, whose names are listed below, played Santa Claus before December 5. Many other gifts have been received since that date and the names of the contributors will be included in the next issue of the *Volta Review*. All gifts—large and small—are sincerely appreciated. It is only because of the generosity of members and friends that the Volta Bureau finds it possible to provide many of its services to the deaf and hard of hearing.

A-B

Mrs. N. M. Alston, Anonymous (1), Florence D. Ayers, Mr. & Mrs. C. H. Becker, Elizabeth F. Beder, Josephine Bennett, Ralph F. Bergdolt, Mrs. C. B. Best, Mrs. Frank Boehm, Mr. & Mrs. Nelson Bonaventura, Joy Chandler Bowers, Janice Boyd, Elizabeth Brand, Margaret R. Breakey, Martha E. Bruhn, Adele Brunjes, Mrs. Algie Bryant, Mrs. W. A. Budlong, Lena L. Burgdorf, Chas. W. Burgess, Warren R. Bush.

C-D

Norton Canfield, M.D., A. Carotta, Mary D. Cason, Ellen Chew, Mrs. Harry F. Clark, P. O. Coffin, Mrs. Frank J. Coleman, Clarence Compton, Morris Contract, Mrs. Natal Cortez, Ruth Cosgriff, Martin O. Danford, Margaret E. Daniels, Mrs. C. R. Davis, Rose I. Davis, Mrs. Julia Delahanty, Douglas C. Deremer, Dr. Louis M. DiCarlo, Lt. Col. Norman DeF. Douglass.

E-F

Watt W. Eagle, M.D., Mrs. John Edelberg, Erick K. Erickson, Mrs. Harrison W. Ewing, Ola Blan Ewing, Bonnie Mae Fansler, Attie L. Feilds, S. Feldman, Mr. & Mrs. George W. Fellendorf, Mr. & Mrs. Richard Fertik, Dr. & Mrs. George D. Flaxman, Jules L. Foreman, Mrs. Bertha M. Foss, Mrs. James D. Francis, Vincent Francis, Margaret A. Fraser.

G

Joseph Gaita, Dora I. Gay, James J. Gillin, Dr. & Mrs. H. L. Ginsburg, Mr. & Mrs. M. W. Glosserman, J. P. Goedert, Hilda A. Gottschalk, Mrs. B. P. Graham, Mabel H. Gray, Mrs. Constance Green, Samuel L. Greenberg, Mrs. H. E. Greinert, Lula West Grigsby, Seymour M. Gross.

H

R. J. Hack, Jr., Mrs. J. W. Haire, Edna Haley, Clara G. Hanson, Mrs. Clifford Haring, Ruth Hawkinson, Mr. & Mrs. James M. Hayes, Mr. & Mrs. Richard E. Hayford, Edna S. Heffner, Mrs. L. K. Henton, Nora D. Hill, Mrs. I. H. Hodge, Mrs. Mary T. Hopkins, Milton W. Horowitz, Hilleary Hoskinson, Mrs. Mildred Howden, Esther C. Howes, John Huebner.

J

Mr. & Mrs. M. Jarashow, Mr. & Mrs. Jennings Jarrell, Nan Jeter, Mr. & Mrs. Harry M. Johnson, Jr., Kate Helen Jones, Mrs. Bernice Josephson.

K

Stanley G. Kalis, Arthur A. Kaplan, M.D., Nik Kaschkadajen, Jacqueline Keaster, Ruth Geisdorf Kelly, Mildred Kennedy, Jean Keppler, Elizabeth B. Key, Mrs. Elizabeth C. Kimble, Arlie R. Kinnee, Janie Kinnier, Evelyn M. Kirchner, Stanley and Walter J. Konoski, Jacob Kopfstein, Mrs. D. Kosowski, Joan Kukkonen.

L

Mrs. A. W. Lahee, Douglas Lamb, James P. Lang, Marcia A. Langdon, Mr. & Mrs. George Laramie, Cleo Larson, Alfred Lecorchick, S. Margaret LeGore, Judy LeVan, E. M. Levenson, Moe Levy, Edward B. Lewis, Jr., Mrs. Hope Horton Lewis, Mrs. Conrad Little, John Luisi, Mrs. Ernest M. Lyman.

M

Rebecca Mack, Richard A. McCullough, Mrs. Russell Madison, Donato Maenzo, Walter J. Malec, Stefan Marciniak, Richard A. Marsh, Richard S. T. Marsh, Ella Mattson, Mrs. E. Mitchell, Alice Mohan, Mr. & Mrs. Charles E. Moore, Erline Morgan, Harold Mowl, Leslie Munn, Leslie S. Murashige.

N-O

Mrs. Louise M. Neuschutz, Mrs. Evelyn T. Newhall, Mr. & Mrs. Paul Oberkotter, Christine Olson, Veronica O'Neill.

P

Mrs. Charles L. Paine, Parent-Teachers Association (Rochester School for the Deaf), Parent-

Teacher Association (St. Joseph's Institute for the Deaf), S. E. Pawal, M.D., Samuel Pearson, Mr. & Mrs. G. Hazen Peaslee, Edmund Pfeifer, Clara E. Pickering, Dorothy Pickett, Barbara Policastro, Mrs. Joseph Posco, Andrew J. Powaski.

R

Mr. & Mrs. Wm. Reeves, A. Richardson, Marie A. Riese, Sol Robbins, Maumee Roberts, Louise Rockwell, Ana Rodriguez, Edith N. Rosenstein, Philip M. Roth, Frances Ruef, Waldo B. Russell, Margaret Ann Rust.

S

Louis Salatech, Laura G. Sartori, Marie L. Schwanke, Vernon Scopel, Helen Scriver, John C. Shull, M.D., S. Richard Silverman, Mrs. Philip S. Smith, Lucy E. Smyser, Alexander Sogolow, Hans Sorenson, Edd M. Sparks, R. S. Stafford, Mrs. Andrew Stanek, Mr. & Mrs. Ferris Stevens, J. C. Stevenson, H. D. Stewart, M. M. Stockman, Mrs. L. S. Stoehr, Mrs. Lloyd P. Stone, J. Robert Strohm, Mrs. Wm. P. Sullivan, Harry L. Sussman, D.D.S.

T-V

Mr. & Mrs. Carl C. Taft, Mrs. B. Taylor, Mr. & Mrs. M. H. Teaze, F. M. Thomas, Mr. & Mrs. Harold L. Thompson, H. B. Titcomb, Mr. & Mrs. Zach Toms, Albert C. Udelson, Harlan Vail, Mrs. Charles Valentine, Mr. & Mrs. Thomas Vigna, R. D. Vogelrenter, Eleanor Vorce.

W-Z

Mrs. Donald Walker, Harry C. Walker, H. J. Ward, Jerome A. Watrous, Wm. D. Webster, Nicholas A. West, W. A. Whitlock, Mrs. Garcie Williamson, Robert J. Wilson, Charles A. Winding, Helen M. E. Woodward, Betty C. Wright, Edith Wyckoff, D. E. Yenrick, J. D. and Hana Zellerbach Fund, G. R. Zickrick, Elinor C. Zimmerman, Mr. & Mrs. Stanley Zupka.

Memorial to Anna B. Peck Presented to the Volta Bureau

The Volta Bureau has received a beautiful new executive desk and chair, given in memory of Miss Anna B. Peck, owner and principal of the Reinhardt School for Deaf Children, Kensington, Maryland. Miss Peck passed away on September 9, 1955, after an illness of several months.

The desk and chair were presented to the Volta Bureau, in behalf of friends of Miss Peck, by Miss Gillian Loar, a teacher at the Reinhardt School for many years. As a result of Miss Peck's death, the school has been permanently closed.

The Reinhardt School was a residential school for the oral education of the deaf, founded in 1908 by Anna C. Reinhardt. Miss Peck, who had taught at the school since 1910, became principal in 1935 at the time of Miss Reinhardt's death. She was a member of the Alexander Graham Bell Association for the Deaf for twenty years.

The furniture has been placed in the office of the executive secretary of the Volta Bureau and the Association. The gift will be formally presented to the Board of Directors at its annual meeting in January.

PANEL ON EDUCATION OF THE DEAF

"Education Planning for the Deaf" was the subject of a panel discussion held at the Southeastern Regional Meeting of the International Conference for Exceptional Children. The meeting was held November 9-12 at Nashville, Tennessee. Panel members included Dr. Helen S. Lane, Central Institute for the Deaf; M. H. Crockett, North Carolina Negro School for the Deaf; and Ben E. Hoffmeyer, North Carolina School for the Deaf. Dr. C. E. Rankin served as panel chairman. The group discussed significant changes in the education of the deaf in the past fifty years, present objectives, and plans for the future.

The meeting in Nashville was attended by more than 400 teachers of special education from the southeastern states. A great deal of attention was given to the problem of the shortage of teachers and to methods for recruiting teachers to work with exceptional children, including the deaf.

A Guide to Group Hearing Aids

PAUL ROTTER

THE engineer's development of electronic equipment, the educator's improvement of auditory training techniques and the research findings demonstrating the value of both have made the use of amplification in the education of deaf children a vital part of the curriculum.

In order to carry out an ideal program for educating the deaf and severely hard of hearing, it has become necessary for schools to purchase and install high fidelity group hearing aids. The pioneers in the use of this type of equipment had to develop their own set of standards for the guidance of electronic engineers. After considerable experimentation in the use of amplification, certain basic values have evolved that may serve as a yardstick to help in choosing the best possible group hearing aid for a particular situation.

A wise buyer must have a reasonable set of goals which will allow for future growth. He must be aware of his own needs and potentialities. All things considered it is probably wisest, economically, to purchase and install the best equipment available within the limits of one's budget. With this in mind we should consider a number of factors involved. Then we may check the characteristics of a group aid using a set of minimum and maximum standards of operative characteristics, performance quality and practical application. This article has been written in an effort to permit the reader to assemble his own equipment, with the help of a technician, or to use the data as a checklist for measuring the quality of a "package" unit.

The ideal group hearing aid should be able to recreate "the exact psychological impression of presence."[1] This should be true whether recordings are used or the live voice of a speaker is amplified. This means that the ideal group aid should recreate all the tones the human ear can recognize, with a minimum of distortion. For true reproduction the high and low tones must also be given their full value. Thanks to years of research our electronic engineers are capable of producing very fine equipment. Unfortunately a number of our institutions have found the cost of this equipment prohibitive.

Thus far we have been aiming at an ideal or perfect situation which seems almost impossible to achieve. If standards are lowered slightly and particular problems re-evaluated in context, it is possible to arrive at a practical solution. While it may not always be possible to have the most faithful reproduction of sound, it should be possible to reach a point of "most effective communication under existing conditions."[2] This calls for a careful consideration of Fletcher's statement that "each person has a hearing acuity which is peculiar to himself. Consequently, he learns to interpret the sounds about him with his particular hearing mechanism."[3] This provides enough leeway to work on an aid which will pick up, through a microphone, the acoustic waves created either by the human voice or by any other source. These waves will then be converted into electrical energy, the energy amplified and the amplified energy in turn reconverted into an amplified acoustic form. These tones can then be delivered to the ear through the air, via the loudspeaker, or more directly through the use of headphones. With training, the hearing impaired learn to recognize or interpret this acoustic form.

If a record player is used, the original sound source is replaced by a mechanical device which produces the electrical energy in proportion to the variations in the

[1]Hoefler, Donald Carl, *Hi-Fi Manual.* New York: Fawcett Books, 1954, p.4.

Mr. Rotter is assistant to the superintendent of the Lexington School for the Deaf, New York City. He has taught in the academic department of the school since 1947, working with children from preschool to high school age. He received his master's degree from Columbia University Teachers College and is completing work for his doctorate. Mr. Rotter is a special lecturer in the Teachers College-Lexington School teacher training program.

[2]*The Effective Reproduction of Speech*, Jensen Radio Manufacturing Co. (Technical Monograph No.4), February 1946, p.3.

[3]Fletcher, Harvey, *Speech and Hearing.* New York: D. Van Nostrand Co., Inc., 1929, p.142.

grooves of the recording. The same basic procedure, as outlined above, is then followed.

The group hearing aid has three major parts: The microphone (sound source input or pickup system), the amplifier, and the headphones (output system). In order to achieve maximum performance, all these parts must be electronically balanced.

The microphone is used to pick up the sound for speech and auditory training work. Depending upon the physical characteristics of the room and the work habits of the group, either one or more microphones can be used. The microphone system should be designed to pick up sound from anywhere in the room and accurately convert it into proportionate amounts of electrical energy. There are various types of microphones on the market, and the choice should be left to the technician making the installation. The microphone selected should be sensitive enough to pick up relatively weak sounds over a wide frequency range, and to reproduce them electrically with a minimum of distortion.

The Record Player

The group hearing aid should include a record player for auditory training and entertainment. Nearly every commercial unit on today's market employs a switching arrangement to allow for the use of either recordings or live sound, and will accommodate recordings of 33⅓, 45 or 78 revolutions per minute (rpm). A record player of this type should be selected. The 33⅓ and 45 rpm records are generally preferred since they cover a wider frequency range and permit better reproduction of sound. Recordings of 78 rpm are rapidly becoming obsolete but many good records of this speed are still available. Storage space is another reason for the 78 rpm recording's decline in popularity. For instance, a one-foot stack of 33⅓ rpm records is equivalent to an eight-foot stack of the 78 rpm speed.[4] This is an important factor in schools where space is at a premium, and should play an important part in the selection of recordings.

The turntable should be as wide as possible. This additional support will result in longer life for the recording, and will cut down on noise and distortion by reducing record wobble. A turntable surface of cork, impregnated with neoprene rubber, will help to avoid record slippage.[5] A good turntable is only as good as the motor which drives it. In making a selection it is best to rely upon the advice of the serviceman and the good name of the manufacturer.

Stylus

The stylus, or needle, is a vital factor in attaining quality reproduction of sound and in providing for long life and minimum record damage. Three well-known types, listed in an ascending order of preference, are the osmium (a hard, bluish, platinum type metal), sapphire and diamond. The sapphire stylus is brittle in comparison with the diamond, but both are about equal in sound reproduction. The diamond outlasts the sapphire by about 20 to 1. Of course it costs proportionately more than the sapphire, but if handled carefully may prove to be the best buy.

Knowing when to change the stylus is important and will lessen record wear and guarantee continued good sound. The stylus may be examined under a microscope or a special stylus test record may be used. One test record, manufactured by the Audak Company, has a series of soundless grooves. When a bad stylus is used, the grooves turn gray in color. Either method of testing may be used satisfactorily.

Pickup Arm

The pickup arm, which holds the cartridge into which the stylus is inserted, should be as light in weight as possible. If it is heavy it must be designed to rest lightly on the records.

The *Consumer Reports* for June 1955 includes a very worthwhile report on a practical survey of 26 magnetic and piezo electric type pickup arms.[6]

Any hearing aid using a record player should have a monitoring device. The simplest solution is the addition of a small loudspeaker to the output system. This permits the teacher and all others in the

[4]Hoefler, *op.cit.*, p.35.

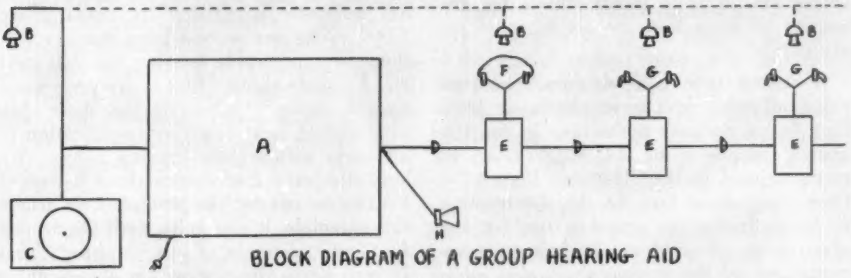
[5]*Ibid.*, p.43.

[6]Consumer Union of U.S., "Hi-Fi Pickups." In *Consumer's Reports*, 20:277, June 1955.

room to hear exactly what the children are hearing through their headphones.

The Amplifier

The amplifier is the workhorse of the group hearing aid. It is quite possible that in early installations too much attention was paid to the amplifier and not enough to the microphone and headphones, probably because of the fact that the amplifier is responsible for increasing the strength of the signal. In times past a great deal of money would often be spent on a fine amplifier which was then combined with input and output systems that could not carry the load, cover the frequency range or stand up under the same usage. Today the group hearing aid is often purchased in a package deal. Therefore a buyer should attempt to select a unit containing the greatest number of desirable features.



BLOCK DIAGRAM OF A GROUP HEARING AID

A - Amplifier
B - Microphone (or microphones)
C - Record player
D - Patch cords
E - Volume control boxes
F - Earphones and headset combination
G - Ear insert, receiver type
H - Small monitor loud-speaker

Group aids using magnetic pickup arms need to have a preamplifier to boost the electrical impulses before they are fed into the amplifier. In any case the amplifier should reproduce a proportionate amount of current for each volt that is fed into it. When an amplifier is used with deaf children it is usually producing a rather high output. Since the deaf child's threshold of hearing may be rather close to his threshold of pain, the amplifier needs a limiting device to be sure that sudden loud sounds are not fed through and amplified to a point where they might either damage the child's ear or frighten him. There are three popular limiting methods in use at the present time: (1) The use of a compression circuit, (2) The use of a peak clipping device, (3) The insertion of an automatic volume control circuit to fix the output at a predetermined level and thereby safeguard the ear. In each case some distortion results, but if regulated carefully it is barely noticeable. The setting of these controls should be made either by or under the supervision of the audiologist or school serviceman. After a bit of experimentation it is relatively easy to find the best setting and then the amplifier should not be disturbed. With this in mind it is suggested that this control and a master-variable tone control both be situated within the set so that they are not easily accessible to the children or others who have not been carefully instructed as to proper methods of usage.

In the average group hearing aid the microphone should be able to pick up a signal or sound that was originally as low as 48 decibels. The amplifier should be capable of boosting the signal to a point as high as 150 decibels with as little as one or two per cent of distortion. It must do this in a classroom where ten to twelve headsets are in use. This can be done with ease by an amplifier that can produce about 25 watts of power.

For the average person a sound of 140 decibels is painful. The teacher must be very careful to see that the master volume control is set so that it will not allow too much sound to come through. Nevertheless the amplifier should be designed to produce more sound than is actually required, because very few electronic devices are designed to operate efficiently

when driven to the maximum. The ideal goal is to keep the amplifier down to a maximum of one or two per cent of harmonic distortion and still provide an output of 140 decibels.

There are two valuable features which should be included in any amplifier, although neither is basic. The first is a small pilot light to indicate that the set is on. The second is a device to indicate the level of speech or other sound picked up by the microphone. This may be in the form of a V-U meter, a "magic-eye" or a fluctuating neon bulb. These devices have helped many deaf children gain some control of their voices and it is a handy check for the teacher to show that the set is operating properly.

A master tone control should be provided allowing for an emphasis or from four to six decibels per octave in the frequency ranges from 300-4000 cycles, as recommended in the "Harvard Report."[7,8] Here, too, usage may be the determining factor in finding the proper setting for any given group of children. Technical accommodations of the system must also allow for as broad as possible flat high fidelity responses. Fletcher feels that an amplifier covering a range of from 100 to 7,000 cycles per second will give practically complete coverage for speech.[9] Hallowell Davis and his associates go approximately 1000 cycles per second higher, to 8,000 cycles per second.[10] For all practical purposes Fletcher and Davis are in agreement. This seems to indicate that the amplifier need only cover a frequency range up to 8,000 cycles per second if speech is the major consideration. Electronically this is a simple matter which is within reason financially. When recordings or live music are used, the frequency range of the amplifier must be increased if all sounds are reproduced with a minimum of distortion. The optimum would be to reproduce everything the human ear can hear. This is a frequency range extending from 20 cycles to 20,000 cycles per second, and it is difficult to achieve in a school situation because some of the equipment required is beyond the financial limits of most institutions.

There are two practical guides to aid in the selection of an amplifier—the limitations of the type of headphone used, and the frequency range of the residual hearing of the majority of deaf children.

A number of scientists and educators feel that there is nothing to be gained by subjecting nerve-deafened children to high-frequency amplification if they are unable to hear high tones. "If *all* nerve fibers that are normally stimulated by tones above 3,000 cycles per second have degenerated, then no conceivable hearing aid can ever make sounds above 3,000 cycles per second audible again."[11] Nevertheless these children should be exposed to amplification of all tones within their hearing range. We may still learn much more about increased tolerances, but for the present if we accept this principle, it also helps limit the needed frequency response of our amplifier. This in turn keeps the cost within a reasonable bracket.

Reception of Amplified Sound

Everything that goes through the amplifier is fed into the output system. The output of the amplifier may be carried to the ear via the usual headphones, through the small hearing aid-type receivers with individual ear inserts, or through a loudspeaker.

Each child should have a volume control box on or near his desk. This control box permits the child to regulate the volume in either ear separately, or in both ears, through the use of one control. Before the children put on the headphones, the master volume control should always be used to regulate the maximum output of the amplifier. It would be an added luxury to have calibrated controls throughout, which would aid in checking on the results of audiometric examinations.

The patch cords plug into each control box, thus connecting all units to the amplifier. The earphones also plug into the control box, thus enabling the child to pick

[7]Davis, Hallowell, *et al, Hearing Aids: An Experimental Study of Design Objectives.* Cambridge, Mass.: Harvard University Press, 1947, p.197.

[8]Watson, L. A., and Tolan, T., *Hearing Tests and Hearing Instruments.* Baltimore: Williams and Wilkins. 1949, p.326.

[9]Fletcher, Harvey, "Hearing, The Determining Factor for High-Fidelity Transmission." In *I.R.E. Proceedings,* 30:266-77, June 1942.

[10]Silverman, S. R., and Harrison, C. E., "The National Research Council Group Hearing Aid Project." In *American Annals of the Deaf,* 96:420-31, September 1951.

[11]Davis, Hallowell, *et al, Hearing and Deafness.* New York: Murray Hill Books, 1947, p.196.

up the amplified sound. A good set is designed so that the child who leaves his desk may remove his plug from the control box without affecting the volume of all the other children. The patch cords allow for flexibility. If one unit is bad, the patch cords can be quickly disconnected and the desk removed from the line, or the faulty unit may simply be bypassed. If the desk is removed, another one can easily be put in its place. In older installations a broken connecting wire put the entire group aid out of action. It then required a great deal of time to find the break. Now one section can be removed and tested, and replacements can be made on the spot so that the aid can be run continuously. The desks need not be nailed down. They may be assembled in almost any order the teacher may desire, and changed on a moment's notice. In a building where space is at a premium this also makes each room available for double duty.

The Output System

The output system presents a major problem. There are many microphones and amplifiers capable of accurately reproducing, with little distortion, sounds within a wide range of frequencies and intensities. Nevertheless receivers that are limited in the frequency range they can cover, or in the power they can transmit, should make us think twice about the other equipment in which we are investing a good deal of money. To date, the trend toward smaller receivers has emphasized the weaknesses of the weakest link in the system. At the same time the small size has made it possible and convenient for many deaf children to be helped by the use of group amplification over long periods of time. Modern research will in time probably find some way of increasing the frequency range and power handling ability of the small receiver.

For rotating classes and older groups it may still be best to use the larger headphones. The younger children appear to do best while wearing the smaller insert-type receiver. Any receiver used should transmit frequencies of the speech range with a minimum of distortion. They must also be able to handle the power output of the amplifier or they will be ruined as soon as they are used.

In all cases an attempt should be made to match all the characteristics of the three major parts of the group hearing aid and, as mentioned earlier, these parts should be electronically balanced.

The ideal front panel of a good group hearing aid allows for ease of operation. All the teacher has to do is turn the set on or off and regulate the volume. In time she will know where the volume control should be set and will probably be able to leave it at one setting. For use in schools the aid must be simple to operate and easy to repair, and must permit uniform operating technique throughout the school. Simplicity of operation instills confidence in the teacher and ease of operation usually results in fewer repairs.

Experience has shown that best results will be obtained from group hearing aids which are simple to operate, and which are sufficiently sturdy to remain in working order for long periods of time. The regular use of such equipment, in working with children with severe hearing impairments, will result in many educational dividends.

WESTERN PENNSYLVANIA SCHOOL ACQUIRES ADDITIONAL PROPERTY

A large private residence in Pittsburgh has been purchased by the Western Pennsylvania School for the Deaf, according to an announcement by Dr. Sam B. Craig, superintendent. The property is located near the school campus and will be used as a nursery school. The property acquired includes a 26-room residence, large garage, and approximately one acre of landscaped lawn. The building can house and provide teaching and recreational facilities for 30 to 35 resident children, in addition to a number of day pupils. Dr. Craig states that present plans call for the operation of the nursery school as a separate unit of the Western Pennsylvania School.

Industrial Audiology

ALBERT KOCH

IN recent years there has been an increasing interest in the problems of industrial audiology. While the literature on the many phases of industrial audiology has been voluminous in the technical journals, insufficient information has been published in the nontechnical periodicals which, one assumes, are more widely read among the acoustically handicapped and those working with this group.

For many years it has been known that long exposure to extreme noise produced hearing impairment. This fact was known not only medically, as indicated by medical reports published during the late nineteenth century, but workers also were well aware of the effects of noise. In some types of industries, such as boiler making or forging operations, a hearing loss frequently increased a man's prestige by serving as an indication of long experience. In the eyes of his fellow-workers, the hard of hearing man often would be considered as having "graduated" from an apprentice to a valuable experienced workman.

There were probably two reasons for this attitude. As a general rule significant hearing loss does not occur until the worker has been exposed for several years. It would seem logical, therefore, to make a connection between the proficiency of long practical experience on a job and the onset of hearing impairment. We know now that this assumption is not valid, since individuals differ in their susceptibility to hearing loss because of exposure to noise. In earlier days, too, hearing loss came to be considered a helpful factor in the individual's ability to continue in his noisy occupation and accept the psychological aspects of additional noise exposure, thereby gaining the long experience essential to mastery of the trade. This philosophy must now take into account the fact that psychological acceptance does not include physiological immunity. Damage continues to occur.

Mr. Koch is an industrial audiologist at the Liberty Mutual Insurance Company, Boston, and also serves as consulting audiologist at the Boston University Speech and Hearing Center.

The above-mentioned contributing factors to the workers acceptance of hearing loss as part of the game, were fortified with a third consideration. The worker who suffered a loss of hearing was frequently a highly skilled worker who took great pride in his trade. The high incidence of auditory impairment among specialized groups of workmen resulted in fairly universal acceptance of hearing loss as an indicator of a man's position in a factory. The boiler-maker or drop-forger wore his hearing loss, so to speak, as a badge of accomplishment indicating to all that here was a man who belonged to an elite corps of workmen.

These viewpoints held by the workers, combined with a natural reluctance on the part of industrial management to stir up labor difficulties, contributed to the years of inaction toward the control of noise.

The fact that workmen exposed to noise frequently inserted cotton, gum, waste, lead balls and other objects into their ears indicated that while they might be accepting noise they were nevertheless aware that it was annoying and, one assumes, detrimental to hearing. It is not inconceivable that acceptance might well have been forbearance.

Industrial deafness, as it is commonly called, is an outcome of exposure to unusually loud sounds. It is generally the result of long exposure to such sounds. Total deafness in such cases is rare, but may occur as the result of a head injury or severe acoustic trauma such as exposure to blast.

The damage to the hearing mechanism, as a result of exposure to noise, is localized to the inner ear. Cochlear lesion, specifically degeneration of the hair cells of the organ of Corti, produces a perceptive (nerve) hearing loss which is irretrievable. The amount and rapidity of nerve degeneration, as an outcome of noise exposure, involves a number of closely interrelated quantities which must be carefully considered and weighed in each individual case. Industrial hearing loss due to noise,

with the exception of sudden severe trauma, is never a single cause-effect relationship. The over-all pressure level of noise, intensity of octave bands of the frequency spectrum, and length of time of exposure are important aspects of the problem, as well as individual susceptibility, medical history, physical surroundings, and position in relation to the source of noise.[1]

Noise Must Be Analyzed

Just how much noise is necessary to cause hearing impairment is intricately tied in with the characteristics enumerated above. In general there seems to be some concensus that extremely susceptible individuals may suffer hearing loss after long exposure to noise levels in excess of 90 decibels, and that as the noise intensity increases the significance of susceptibility decreases, until we reach noise levels of 140 db. For instance the noise levels of jet aircraft may reach as high as 160 db. Almost any individual undergoing even relatively brief exposures to such a noise level suffers some permanent loss of hearing.

If the determination of the over-all sound intensity were the only criterion necessary for judging the extent of hazard in a given industrial environment, the situation would be simplified. Such, however, is not the case. High frequency noise is more damaging to the end organ of hearing than lower frequency noises. Before it is possible for the industrial audiologist to determine whether or not a particular sound exposure is dangerous, the noise must be analyzed. In general, the ear can withstand greater intensities in the lower frequencies. Moreover, the matter of the length of time of exposure as a cause for individual hearing loss is, obviously, directly proportionate to the intensity levels in the higher frequencies. In general we may assume that the greater the noise intensity, the shorter the period of time before damage has occurred.

The multidimensional characteristics of age, medical history, and individual susceptibility will also play their parts in evaluating time and exposure. For example, does the person, age 43, newly exposed to loud noise, already have incipient nerve degeneration attributable to the normal aging process? If so, will extensive noise levels hasten diminution of hearing? What of the worker, age 23, who relates a childhood medical history of chronic otitis media and several mastoidectomies? Will he be more susceptible to noise injury? Then, too, it becomes apparent that attempts to ascertain a clear picture are further complicated when we consider cases where two workers of the same age and physical condition are affected by noise differently. One worker suffers a hearing loss after five years of moderate exposure; the other person still has normal hearing after ten years of heavy exposure. Obviously there are unexplainable physiological weaknesses which render one individual more susceptible to noise than the other.

Increasing Noise Level

On one point there is agreement. Noise levels sufficiently great to cause hearing loss are increasingly present in industry as the search for more and more mechanical power continues. Earlier research people were concerned with intensities of 100 db or so. For the past several years anxiety over 150 db has not been uncommon, and now we must be concerned with sound levels as high as 160 db. When one recalls that the threshhold of pain is between 130-140 db, it becomes apparent that exposure to sound levels approaching 160 db might well be physiologically and psychologically devastating.

The cost of industrial hearing loss in terms of unhappiness, anxiety and frustration are very great. The financial cost to industry could well be ruinous. Legal authorities with much experience in the area of industrial workmen's compensation have pointed out that it is perfectly possible for many industries to become bankrupt as a result of the noise hazard.[2]

Fortunately, several concomitants of the increasing noise level in industry are contributing to alleviation of the danger.

In the first place the industrial philosophy, which might once have been "let sleep-

[1]Fox, M. S., "Evaluation of Hearing Loss in Drop Forge Workers." *Laryngoscope*, 63:960-71, October 1955.

[2]Symmons, Noel S., "Insurance Aspects of Industrial Noise." Paper prepared for presentation at annual meeting of the American Mutual Alliance, Edgewater Beach Hotel, Chicago, Nov. 18, 1953.

ing dogs lie," has changed. No longer is industry willing to have workers accept hearing loss as part of the job. Enlightened management has come to realize that the economic loss alone is high and neglect is contrary to the humanitarian views upon which more and more industries pride themselves.

Medical Interest in the Problem

A second contributing factor to hearing conservation in industry has been a revitalized medical interest which culminated in the establishment of the Committee on Conservation of Hearing of the American Academy of Opthalmology and Otolaryngology. The outcome of this medical interest has been the production of research data relative to the anatomical and physiological implications of hearing loss due to noise. Parallel to the medical development has been the growth of the science of audiology and the resultant pertinent information in the area of psychoacoustics and measurement. Both groups of complementary data have served to clarify and highlight problems requiring attention and research. Finally, with the development of electronic equipment such as the sound level meter, the wave and octave band analyzers, and the pure tone audiometer, it is possible to appraise the situation accurately and make proper recommendations.

The outcome of all these parallel developments has been that more and more industries with foresight and wisdom, with the aid of their safety and medical personnel, and service personnel from their insurance carriers, are devising hearing conservation programs which go far toward alleviating the problem. These hearing conservation programs, planned for individual and specific situations, do have a common approach. Any conservation program worthy of the name makes an effort to handle the problem by three methods in simultaneous operation—reduction of noise at the source, isolation of the offending source, and provision for medical control.

Obviously, the first two methods are engineering problems. Industry pays huge sums of money to research engineers who are working constantly to produce quiet machinery and to discover methods of acoustically treating machines and environments in order to bring about a safe noise level. Engineering should be, and is, the first line of attack on the problem of industrial noise.

The third method, medical control, must be carried out in the plant. The pivot point of medical control in hearing conservation is a carefully planned, medically supervised audiometric testing program. The primary purpose of such a program is to maintain a chronological record of the worker's hearing acuity from the day he is hired until he leaves the company. Industry's interest in establishing such a base line is twofold. In the first place, should a compensation claim be filed for an industrial loss of hearing, by means of a preplacement audiogram it is possible to determine the extent of hearing loss incurred from noise exposure on the job, as compared with any loss of hearing an individual worker might have had at the time he was hired. Industry thereby protects itself against unjustified claims.

Placing the Worker To the Best Advantage

Of equal importance, the establishment of a particular level of hearing at the time of employment makes it possible to place the new worker to the best advantage. As a rule there is no medical justification for refusal to hire a person with a hearing loss, but knowledge of that loss would give some indication of the noise environment in which it would be advisable to place him. For example, a man might be qualified to work as a punch press operator in a very noisy environment, or as a general mechanic in a quiet environment. If a preplacement audiogram revealed decreased acuity at 4000 and 8000 cycles, and the candidate related a history of three years exposure to artillery fire, it would obviously be inadvisable to place him as the punch press operator, whereas the other job would be fine for him.

The second phase of the audiometric program is the periodic recheck of all workers exposed to injurious noise levels. By so doing, it is possible to pick up the noise sensitive individuals and transfer them to a different work environment before irretrievable loss occurs. For example, a 27-year-old man applies for a job at an iron foundry. He is examined by the plant

physician and found to be in excellent physical condition. A carefully conducted pure tone audiogram reveals normal hearing at all frequencies and the man is assigned to a job operating a very noisy air hammer. At the end of a month on the job, he is rechecked at the beginning of a working day and his audiogram reveals a 20 db loss at 4000 cps. Frequent rechecks show an increasing loss at the frequencies of 4000 and 6000. Apparently this person is sensitive to noise and must be transferred to a different job. Let us assume, however, that he is a highly skilled worker who cannot easily be transferred to another job. It might then be possible to recommend ear protection, such as plugs or muffs, which would reduce the noise to a safe level. Periodic rechecks could then be made to determine their efficiency.

The industrial noise problem is important, and through hearing conservation programs industry is attempting to meet it. Such programs are profitable. They save industry money and result in happier, more efficient employees.

Putting a Hobby to Work

RICHARD W. REAMES

SEVERAL of the students in our intermediate class had their own beginning stamp collections. Some had many stamps, but there was little or no guidance and the collections were quite unorganized. Because of this we started a stamp club in our room. Original members were those who already had stamp collections. Soon the other children became interested and the entire class joined the club.

At first we spent most of our time organizing the collections of the children. The work consisted mainly of finding where stamps belonged in the books, learning how to handle the stamps correctly and how to mount them properly in the albums.

It soon became apparent that the stamp collections provided a vast new source of language and speech to be learned, and that the children were eager to learn it. Lists of new words and their meanings were kept on the bulletin board so the children could learn them. As new words were introduced they were added to the list.

The students had difficulty in locating and learning the different countries of the world. Their current interest seemed to be Europe, so we made an interesting map of Europe and the Baltic countries. First an opaque projector was used to enlarge a

map. The outlines of the countries were traced on a piece of tag board, 24" by 36". This in turn was mounted on plywood to give it a firm backing. The students then began to apply some of their elementary science. Holes were drilled through each country and also on spaces at the sides of the map where the names of the countries were to be located. Bolts were inserted and bell wire connected from the country on the map to a bolt on the side of the map. The boys mixed the wiring thoroughly so that there would be no pattern to follow in locating a country. They then connected wires with a flashlight bulb and dry cell. The connections were made in such a way that by touching a bolt in a country and a bolt near the correct name of that country

Mr. Reames is a teacher in the Intermediate Department of the Edna E. Davis School, Spokane, Washington.

on the side of the map, a light would shine. If the children made a mistake the circuit would not be completed and the light would not shine.

The students knew the stamps better than the location of the countries so at first we mounted a stamp from each country on the map. After they became familiar with the names of the countries we removed the stamps. Learning was taking place all the time and the children were enjoying it thoroughly.

At this same time the children were studying the different values of money in arithmetic. Though we had play money the same size as the dimes, nickels and other coins, there did not seem to be a very good carryover to the real thing. When we used real money they seemed to learn much better. Because of this we started a stamp store using stamps purchased from reputable dealers and using real money. The plans for selling the stamps were discussed with the parents first. They decided to limit the sale to 25¢ a week for each student. Even with this seemingly small amount the children have learned to make and count change correctly. Stamps are sold one day each week, with two different children running the store each week. One child makes the change and the other keeps a very accurate record of everything sold. The bookkeeping is simple but it is very important to the students. The money in the till and

the amount sold must balance at the end of each day that the "store" is open.

All of the boys in the room belong to the Boy Scouts and attend troop meetings with boys who have normal hearing. They are as anxious as any other boys to work and receive merit badges which are necessary for advancement in Scouting. As in many other things, however, this work is harder for the deaf children because of the speech and language involved. The boys are all working very hard to fulfill the requirements for their stamp collecting merit badge. Some have completed this work to the exact requirements as set forth by the Boy Scouts of America.

Our hobby of stamp collecting has provided an enriched experience in language, speech, science, geography, arithmetic and Scouting, which has been thoroughly enjoyed by all concerned, including the teacher.

CONFERENCE OF EXECUTIVES TO MEET

Dr. Edmund B. Boatner, president of the Conference of Executives of American Schools for the Deaf, has announced that the group's 28th regular meeting will be held at the Mississippi School for the Deaf, Jackson, on April 2-5, 1956. The meeting will be held for the purpose of conducting the necessary business, including reports of the officers and chairmen of standing committees, the election of executive committee members, and such other business as may properly come before the meeting.

TEACHERS OF DEAF-BLIND CHILDREN

Arrangements were recently completed with Boston University School of Education for a joint B.U.-Perkins School for the Blind training course for teachers of deaf-blind pupils, effective September 1956. Pupils will be in residence at Perkins School and can earn a master's degree in one year if additional courses are taken during summer school. Particulars may be obtained by writing Edward J. Waterhouse, director, Perkins School for the Blind, Watertown, Mass.

Leisure Reading for Deaf Children

PATRICIA BLAIR CORY

Ernie Pyle, Boy from Back Home, by Ellen Wilson. Bobbs Merrill, 1955. $1.75.

Ernie Pyle is one of the Childhood of Famous Americans series which is so useful in our school library. A brief chapter at the end describes what Ernie did as an adult, but the emphasis is on his boyhood and college days back home in Indiana. This is an attractive and wholesome book about a natural, shy and lovable boy who grew up to be a famous newspaper correspondent.

The print is large, the pages have an open and inviting appearance, and black silhouette-type illustrations are scattered throughout the text.

This whole series is useful for introducing biography to youngsters. All the subjects are interesting to young people and the format gives the appearance of "real grown-up" books, yet they are easy enough for fifth and sixth grade readers.

Play with Me, by Marie Hall Ets. Viking Press, 1955. $2.50.

This gentle happy story of a little girl searching for a playmate among the animals she sees, is illustrated with soft, delicate pastels which seem particularly suitable for the tender mood of this lovely book.

This little girl sees a grasshopper and tries to catch it but he leaps away. She tries to catch a frog, a turtle and a chipmunk, but they all run away.

At last, lonely and looking very sad, she sits down quietly without making a sound. One by one the animals return and gather around her until at last a baby fawn licks her cheek and the chipmunk jumps up in her lap. Amusingly, the only thing which has moved in the last few pictures are the little girl's eyes as she looks about, but holds very still. The last page shows her dancing home.

Our children are quick to see that the animals don't like to be caught but that they will play when they aren't frightened. The children also love the happy, satisfying ending.

This should be as popular as Mrs. Ets' earlier book, *A Walk in the Forest.*

What's Your Name? By Zhena Gay. Viking Press, 1955. $2.00.

All children love to be directly involved in a story and to feel themselves actively a part of it. This charming new book about animals and their names provides a wonderful opportunity for children to participate with you in the reading and in the guessing game which can go on on each page.

Full page drawings and amusing verses provide clues to the identity of the baby animals which appear on the following pages. The illustrations alone give clues to some of the animals. For example, drawings of a dog collar and bones quite obviously suggest the puppies which appear on the next page. A border of acorns immediately suggests squirrels, but the children's attention has to be drawn to the text to read that "we are fat and pink and have short curled-up tails," before they can deduce that a mother pig and her family will appear on the following page.

Most of the animals can be easily guessed—the hardest one perhaps is the penguin who lives at the "bottom of the world" and is a bird but doesn't fly.

We have had a hilarious time with this book in our library—using it with grades one, two, and three. It has offered a delightful opportunity to point out that the *text must be read* in order to get the correct information from a book. The children are learning that looking at pictures is not enough.

The First Book of Sea Shells, by Betty Cavanna. Franklin Watts, 1955. $1.95.

For those of you who are always looking for easy-to-use reference books (and who isn't?) this one on sea shells is a gem. For a science book the vocabulary is relatively simple and the pictures and diagrams are

The first reviews by Mrs. Cory appeared in the last issue of the *Volta Review*, page 449. Books are selected for comment on the basis of their popularity with deaf children at the Lexington School for the Deaf, where Mrs. Cory serves as librarian.

WANT ADS

Rates: Subscriber, 25 words, $1.75 for one insertion, $4.00 for three insertions. Nonsubscribers, $2.75 for one insertion, $7.00 for three insertions. Box numbers 25c extra per insertion. Address Advertising Department, Volta Review.

WANTED: Orally trained experienced teacher to privately instruct small group of primary deaf children on West Coast. Salary and equipment comparable to best schools. Box D-2, Volta Bureau.

WANTED for January, 1956, a trained teacher of the deaf for primary children. Degree, elementary certificate. Good salary, well equipped room and pleasant working conditions. Apply to D. J. Heathcote, Asst. Supt., Kalamazoo, Michigan, public schools.

AUDIOLOGIST WANTED—This man to do hearing rehabilitation work with adults using a hearing testing mobile unit. Qualifications: Master's degree in speech and hearing, or Master's degree in Audiology; or equivalent specialization in Audiology. Two years paid experience. $5,700 going to $6,700 in five years. Write: Stahl Butler, Executive Director, Michigan Association for Better Hearing, 408 Hollister Building, Lansing 8, Michigan.

WANTED AT ONCE: Hearing woman supervising teacher for all departments. New England residential school. State retirement age is 70. Box N-2, Volta Bureau.

EXECUTIVE-THERAPIST position open March 1 in United Fund agency. Offers experience with varied program in progressive community. Applicants with Master's degree invited to furnish biography and references. Greenville Hearing & Speech Center, General Hospital, Greenville, South Carolina.

WANTED: Classroom teacher, oral, for primary or intermediate level. New England residential school. State experience and training. Box J-2, Volta Review.

THE MECHANISM OF SPEECH
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exceptionally clear. There is a short but adequate index and a list of special words which shell collectors use.

Cones, abalones, conch shells, periwinkles, mussels, scallops and surf clams are just a few of the specimens which are attractively sketched.

Good, simple information about how to build and take care of a shell collection is included, as well as instructions on how to keep a live shell collection healthy in an aquarium.

Although we have only had this book for two or three weeks, the youngsters have noted it with interest and a number have brought shells from home to identify them.

Book of Nursery and Mother Goose Rhymes, by Marguerite de Angeli. Doubleday, 1954. $5.00.

The jacket of this lovely book says it contains 376 rhymes with more than 260 illustrations. Those numbers convey some idea of the size and complete range of the selections, but it is impossible to describe the book's pictorial beauty and charm. It is something that must be seen and handled in order to appreciate Marguerite de Angeli's illustrations. The drawings for the "Three Little Kittens," "Old Mother Hubbard," "Pussy Cat, Pussy Cat, Where Have You Been" and many others are going to draw children and adults back to this book again and again for many years to come.

This is not a book to be left about where it will fall into the hands of a child who has not yet learned to love and care for books. It is a book for teachers, parents and librarians to read to children, to show to them, to lead them into an appreciation of beauty. And it is an excellent reference book for use in tracking down some of the less familiar Mother Goose rhymes.

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The Parents Talk It Over

With Harriet Montague

Bird Watching in Rhodesia

Barbara is not yet quite three. She has a sister and two brothers, all considerably older than she. She lost her hearing from meningitis when she was a few months old. The extent of her deafness has not been determined.

Barbara has settled down very well in a nursery school for hearing children. There were tears for a few minutes the first morning, but since then she has loved every minute of her school session. She does very well with the painting, finger-painting, clay modeling and cutting and pasting. Every day she comes home with something to show us that she has made in school. One day they made peppermint creams and she came home with a boxful. I wish you could have seen her face as she handed them around and watched us taste them.

The work we have done with her at home in matching colors, objects and pictures has helped prepare her for school. Although she is the youngest child in the school, she sails through all of these activities. She loves to join in the actions of the songs the children sing, and is getting quite good at most of them. In one of them the children imitate a little mouse popping out of a hole, and every time Barbara does this she says "pop," so she must have been watching very carefully.

I have been taking her for a swim most afternoons, and we really enjoy ourselves. At this time of the year—spring in Rhodesia—there are hundreds of birds in the garden and I have fixed up a bird bath so that we can do some bird watching. I have found that this is an excellent pastime for Barbara, as she is just beginning to be a bit noisy. She doesn't scream but is inclined to lift her voice to a shout when she recognizes a school uniform similar to her brother's or sister's, or when we are on a bus and she sees something interesting in the street.

She soon learned that if she shouted the birds flew away, and now she creeps up to the bird bath ever so quietly. When I say, "Hush," she usually stops making a noise. The first time I said it, when we were in town, she was most puzzled and looked around as if to say: "Where are the birdies?"

There are two tame Babbers, most striking looking birds with black and white spotted breasts, that come to eat crumbs off our bedroom windowsill, and the funny little things see their reflections in the window and peck at the glass. They also peck at their reflections in the hubcaps of the car, and Barby loves to see how near she can get to them before they fly away. I find that she can definitely understand me when I say, "Come and see the birdies."

We have rented a bungalow down at the sea—East London, 1700 miles from here—for the months of December and January. When we return from our holiday we shall leave Barbara behind at the school for the deaf, Brooke House. I am very busy sewing for her and getting her things ready. I have bought a photograph album and will fill it up with pictures of our family, house and garden, and grannie, granddad, and all the aunts, uncles, cousins and friends. Barby will take the album to Brooke House. We dread the thought of leaving her behind. We shall look for a hearing aid for her when we are in Cape Town.

MRS. I. M., SALISBURY, SOUTHERN RHODESIA, SOUTH AFRICA

I am delighted that Barbara is doing so well at nursery school and that she has adjusted herself to being away from you a few hours each day. I loved your account of the bird watching. You have given Barbara a whole new interest that will last all her life. One of the questions I am asked most often is how to keep deaf children from screaming. They scream, usually, for one of two reasons. They have just found out that they have a voice and they like the sound of it; or they have learned that they can get attention by screaming that they cannot get when they remain quiet, and so they make a noise. I have never thought of proposing bird watching as an antidote to

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the screaming habit, but it is an idea. I wonder how many of the mothers who write to ask me how to keep their deaf children quiet would be willing to take them on bird walks. I think the mother whose letter follows would be one of the first to try it and make a success of it.

A Mother Who Plays with Her Children

Roy Glyn is three and a half years old. He has a 50-80 db loss and wears a hearing aid. He has a younger sister, Pamela.

Today I am making a new experience book for Roy Glyn. I will probably end up with about four or five. I intend to make one each on food, clothing, toys, animals and tools. I have some experience books already, but the pictures in them are mixed. I find that the lipreading vocabulary increases more rapidly if we arrange together various words referring to the same subject. We play store and post office, and play active games a lot. We play ball in the backyard and Roy Glyn loves to have me bat the ball to him. We talk about the ball. Today when we were in church and he was restless, I gave him a book with pictures to look at. He came to a picture of a ball and yelled the word out loud, "Ball!" That is the first time he has tried to say it. I praised him, but I had to say "Sh" too!

I often take the neighborhood children out to the playground and tonight I took some of them on a wiener roast. After we had our supper, we played football in the park grounds. Roy Glyn really had fun, although at first he did not understand. I played along with the others, and when one of the boys tackled me and threw me, Roy Glyn almost had a fit. When he saw me laugh and saw I was not hurt, he began to join in the fun. He ran to one of the big boys, grabbed him by the legs and threw him down. The children all thought this very funny.

We played miniature golf, too, and Roy Glyn is learning to hit the ball. When we got home and I put Roy Glyn and Pam to bed, they were out like a light—so tired and so sweet.

I am not sure the neighbors like my taking their children out. Most of them don't mind, but there are two women in our block who have no children and they think I am making a fool of myself. I am only

25 years old, and I think you are only as old as you feel. There is a newspaper here called the *Fort Worth Press,* in which a columnist named "Molly Mayfield" answers letters that are sent to the paper. One of the women who disapproves of my playing with the children wrote the following letter to "Molly Mayfield."

A young woman who lives in my block gets out in the yards and even in the street and in the fields and plays with all the children in my neighborhood. She has two children of her own, one of whom is handicapped, and she all but makes a fool of herself. She doesn't care who sees her doing this, but participates in all the children's games, such as football, baseball and hide and seek. She even takes the children skating, swimming and to picnics. I don't think it is very appropriate for a mother to do things of this sort. Her place is to act like a woman and not like a child. Since she has two children of her own, she should stay home and take care of them instead of going around playing with all the neighborhood children.

In her reply, Molly Mayfield said:

This mother is not only a good mother to her own children, but to other people's children also. More power to her. She is young and is probably interested in children, especially since one of hers is handicapped. I think this mother is very wise, and I give her my praise. There should be more like her, and maybe there would be if some were not afraid to be talked about, or if they had their children's interest at heart, as this mother has.

Today when I took Roy Glyn to the Speech and Hearing Clinic, one of the teachers was absent so the supervisor asked me if I would take the class of older children. I did, and we played records and told stories. Later, Mrs. C. asked me if I would come regularly and take a group of children for a few hours once a week, giving her more time to work with them individually. I said I would be glad to. It is volunteer work, but I love it.

MRS. G. W., TEXAS

Good for you, Mrs. W.! I only wish I could quote all of your letter. It is very interesting and shows so much interest in your little boy and so much comprehension of ways to help him. I am glad an intelligent teacher appreciates what you have to offer the children and does not take the attitude of your "sourpuss" neighbor who thinks grownups should not get out and play. I agree with Molly Mayfield that there should be more like you.

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A Case of Dysphasia

Mary is five years old. She has been diagnosed variously as deaf, hard of hearing, aphasic and dysphasic. The latter diagnosis seems to be correct.

The doctor who has examined Mary several times, and is now working with her regularly, says her trouble is that she is dysphasic, both receptive and expressive. She hears very well in most frequencies, although she may not hear very high tones. She imitates inflections perfectly. The doctor is convinced we have "saved" a child who might otherwise have been a hopeless case. Mary is very intelligent and eager to learn. I was counting her word cards last night and had a pile of 125 words she can say quite well. Most of them are words I had previously drilled on in lipreading, so she had a background of having heard them a thousand times, although she did not say them clearly. Now, since she has been going to the speech clinic, she says them well.

It is hard to measure progress with her because one of the things about this difficulty is that the child becomes confused and sometimes can't do the things she knows. Some words she knows, like "cup," she still can't always say clearly, or can't say on demand. She can make a beautiful C sound, but when you want her to say "cake," she can get the "ca," but not the "k." Then, a second later, she puts the "k" sound you were after on the next word that doesn't need it at all. It does take patience! She goes to the speech clinic twice a week and goes to a regular kindergarten every morning.

The doctor has a theory that directions should be taught along with nouns, and with Mary it has proved right. Just naming the objects in pictures gets to be boring, but "Find the house," "Bring the apple," "Where is the shoe?" "Where is the umbrella?" "Put it on the chair," "The ice cream cone fell down. Pick it up," "Give me the candy and the glass of water," are fun.

The doctor taught her first the commands that would be given her in kindergarten: "Hop, jump, walk, run, sit down, stand up, wash your hands, wipe your hands, dance, cough, brush your teeth, fall down." Her first words were nouns with

the article prefixed: "an apple," "a cup," "a house," "a shoe," "some cake," "an ice cream cone," "a ball," "a glass of water," etc. Then, later, she learned, "a girl," "a boy," "a man," "a lady," "a baby," etc. She learned to say, "Hello, Mamma," and I say, "Hello, Mary." When I say, "What's your name?" she learned to answer, "Mary." She learned to ask questions herself, and learned to say, "Have a cookie," when she passed the plate of cookies. She does it beautifully and quickly.

I visited her school last week, and the teacher says Mary has good muscular coordination. She sees what the others do, and follows. She looks at the handwork and imitates it well. She never misses a motion when they do finger plays. She does not seem to listen at all when the teacher reads aloud to them. She knows her colors well. She can count to five, and she applies her counting to the things around her. She is learning to take turns, to choose between two things, to guess what is hidden in your hand.

She is beginning to understand and follow multiple commands: "Bring me a cup and an apple." In a school for the deaf this would come at the end of the second year. She understands many commands relating to a situation: "Pick it up!" "Pull your chair back," "Turn off the light," "Turn on the light." "Stay home!" She is learning the names of the rooms of the house—biggest help of all—and she understands abstract expressions like "tomorrow," and "afterwhile." In fact, she is learning to understand language and to use it.

MRS. H. A., MICHIGAN

Your letter is most interesting, Mrs. A. It is wonderful that you found the right person to help Mary. I was especially impressed with the way the doctor taught Mary to understand questions and answer them. Too often, children with speech difficulties just repeat the question without answering it. It seems to me that the patient work you did with Mary last year, when you thought she was severely deaf and worked at teaching her to read lips, prepared the way for the success you are having now. Repeating and repeating the same words in the same situation helped her to become aware of meanings and to remember them, and she was all the more ready for expert help with speech when it came. You made her lessons interesting for her, so she was able to go through the drill that every deaf child must go through in order to learn language, and this proved the right method of teaching Mary language, even though she is not deaf. She may have a moderate hearing loss along with the speech difficulty, but it is being overcome gradually. Keep up the good work!

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NEWS

Meeting of Association Directors

The annual meeting of the Board of Directors of the Alexander Graham Bell Association for the Deaf will be held at the Volta Bureau, Washington, D. C., on January 20-21. At this meeting plans for the coming year will be outlined and the budget for 1956 will be presented by the Finance Committee for Board discussion and action. Officers will also be elected at that time, along with members of the Honorary, Auxiliary and Advisory Boards. The Volta Bureau serves as headquarters of the Association, and both are operated by the same staff and governed by the Association's officers and directors.

Tennessee School to Be Convention Host in 1957

The Tennessee School for the Deaf, Knoxville, has been chosen as host school for the 1957 meeting of the Convention of American Instructors of the Deaf. William J. McClure, superintendent of the school, is working out preliminary arrangements for the meeting with officers of the convention. The group last met in the Southeast in 1947, when the 33rd meeting was held in Florida. The American School for the Deaf, West Hartford, Connecticut, was host school for the 37th meeting in June 1955.

Centennial Marked by the *American Annals of the Deaf*

With the publication of the November 1955 issue, the *American Annals of the Deaf* observes its centennial as a publication. The magazine was actually founded in 1847, but suspended publication during the War between the States and did not resume until 1868.

The *Annals* is the official publication of the Convention of American Instructors of the Deaf and of the Conference of Executives of American Schools for the Deaf. Edited by Dr. Powrie Vaux Doctor, the magazine is published at Gallaudet College and is under the direct supervision of an Executive Committee of the Conference of Executives. Dr. Edmund Boatner, superintendent of the American School for the Deaf, serves as chairman of the committee.

NOTES

The *American Annals of the Deaf*, now 100 years old, has the distinguished record of being the oldest publication in the world in the field of education of the deaf.

Sustaining Members

The Association has received 33 sustaining memberships since the last report was made in the October *Volta Review*. The annual fee for regular membership is $5.00. The sustaining membership classification was established at a cost of $10.00 per year for those wishing to lend additional support to the work of the Association and the Volta Bureau.

Sustaining members recently renewed or enrolled are: Audivox, Inc. (Boston), Dr. H. Latham Breunig, Mary Brockfield, R. R. Brown, Mrs. Lilian Grosvenor Coville, Salvatore D'Amico, Peter Dang, Simon Durlacher, Mr. and Mrs. George W. Fellendorf, Jules Foreman, Mrs. B. P. Graham, Hilleary F. Hoskinson and Mrs. Raymond Hoxsie.

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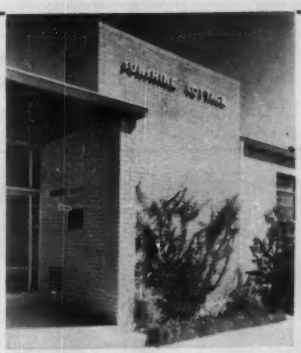
Mr. Hoffmeyer Named Superintendent of North Carolina School

In the November *Volta Review* it was reported that Ben E. Hoffmeyer had been named acting superintendent of the North Carolina School for the Deaf, Morganton. Mr. Hoffmeyer has now been appointed superintendent. He succeeds Dr. Carl E. Rankin who resigned to join the faculty of Gallaudet College. Mr. Hoffmeyer will continue, during the present school year, to serve as principal in addition to fulfilling his duties as superintendent. R. M. McAdams, vocational principal, has been named assistant principal.



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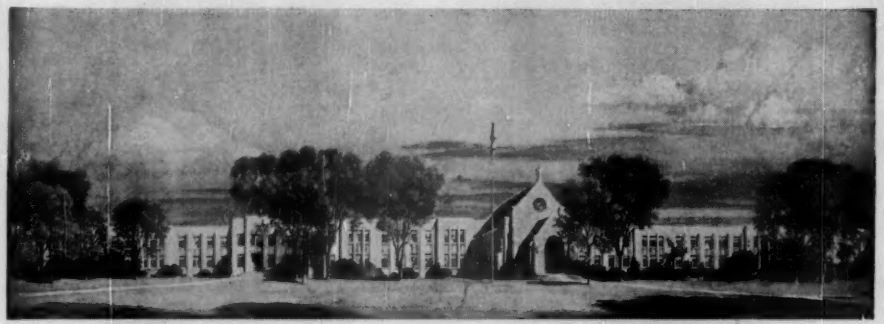

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